

American Artisan

Founded 1880

The Warm Air Heating
and Sheet Metal Journal

Vol. 96, No. 2

CHICAGO, JULY 14, 1928

\$2.00 Per Year

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SEAMLESS steel furnace construction, introduced by The Waterbury, is one of the great advances in warm air heating. It abolishes forever the nuisances of soot, dust and coal-gas in the home.

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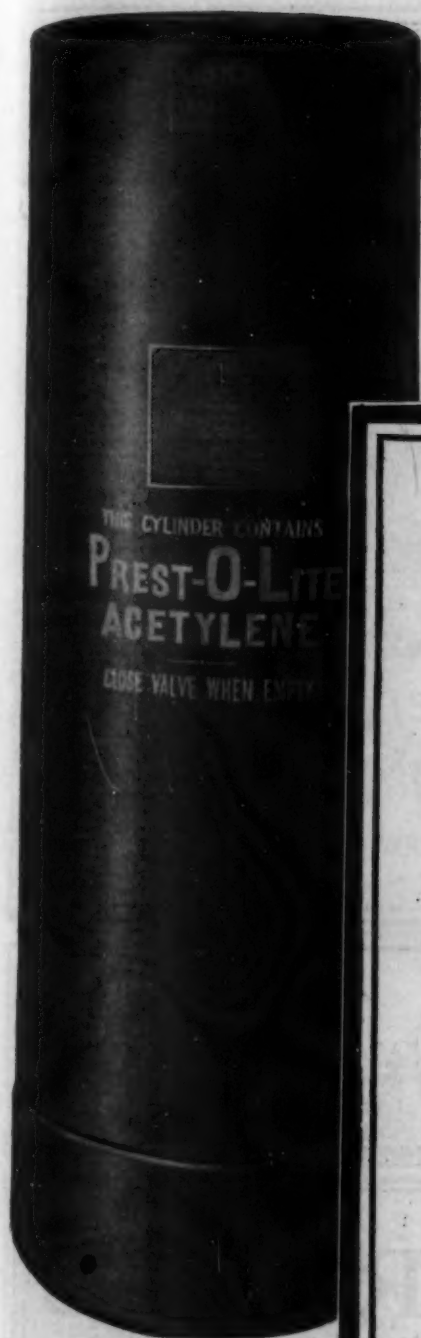
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extra out-
side ring
or drawband is used to
seal the joint and make
a more substantial as
well as a better look-
ing job.

This is but another EX-
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Write for the Weir Book of Facts.

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DISSOLVED ACETYLENE

PREST-O-LITE is a standard product—tried and proved. It has been the leader of the industry for 23 years. Its uniform high quality and country-wide delivery service are facts well-known to every user. Prest-O-Lite is readily available from

31 Producing Plants—102 Warehouses

But every day new users of the oxy-acetylene process are springing up. We want these newcomers to profit by the experience of the old-timers. And so we advertise that they may know that Prest-O-Lite is the dissolved acetylene of American industry.

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Unit of Union Carbide and Carbon Corporation



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31 PLANTS—102 WAREHOUSES

January 9, 1928

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Gentlemen:

I have one of your cast iron furnaces which has been in use since 1888 and is good yet all excepting the water pan which is rusty and I wish you would send me a new water pan.

Yours truly,

(Signed) Charles D. Eliot,
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**We invite any manufacturer of
furnaces to show a better record.**

The HESS-SNYDER COMPANY
MASSILLON, OHIO

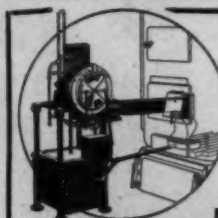
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Facts
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Write for our catalog and terms.

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Adaptable to warm-air furnaces because
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flame insures no cracking or burning of
fire pots, but produces even, **dependable**
heat.

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AMERICAN ARTISAN

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WHICH sort of shop would you pick for the winner, the big one with special machinery, special designers, special workmen and enormous warehouse stock—or the small shop where things go on like they did in 1890?

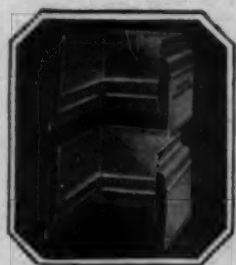
You really have the choice.

The Lamneck plant, the biggest and most modern in the world, is ready to go to work for you tomorrow. We want to go partners. You sell and install and we'll make

the pipe and fittings. We've got the men, the machines and the plant to do it quicker and better than any one.

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416-432 Dublin Ave., Columbus, Ohio

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PIPE AND
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are easily and quickly assembled and the castings fit accurately because, with every furnace shipped, this has been checked and made certain first at our foundry.

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"More Heat to the Shovelful." Actual fuel economy and ease of operation. These two reasons win friends for the Niagara wherever it is installed.

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Write us for further details,
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NOW READY

NEW REVISED EDITION

The NEW METAL WORKER PATTERN BOOK

A Complete and Systematic Course of Instruction in Pattern Cutting as Applied to All Branches of Sheet Metal Work

By Geo. W. Kittredge and Associates

NEW REVISED EDITION Including Some New Problems by FRANK X. MORIO

9 x 11 Inches 525 Pages 395 Illustrations Price, \$6 Postpaid

Indispensable as a Work of Reference for the Foreman and Mechanic

THIS work is the standard reference on all phases of pattern drafting and is recognized as the most practical and thorough text book on modern methods of developing and cutting patterns for sheet metal work. It covers the principles underlying practically every problem that is likely to come up in daily practice. Beginning with the selection and use of drawing tools, the author explains linear and geometrical drawing so clearly that one who has had no previous knowledge of arithmetic or drawing may understand these essentials and apply them. The most approved methods of pattern cutting are also given in the course of the work. As the book progresses the problems gradually become more advanced until the theory of triangulation is fully treated with many practical examples.

This volume does not presume upon any previous technical knowledge on the part of the beginner but aims to place before him all that is necessary to a thorough

understanding of the work performed in the last chapter the practical problems which constitute the bulk of the book. No better text book for home study has ever been published.

The secret of success in sheet metal pattern cutting is in knowing how to apply the principles of geometry to your problems. Upon these underlying principles this book is written and ever since its publication it has been considered the standard authority on sheet metal pattern cutting and many affectionately term it "The Bible of the Trade."

This new edition has been carefully revised in order to keep it up to date and abreast of modern times and it will prove an infallible guide to everyone interested in sheet metal pattern drafting. Besides being a systematic treatise on pattern cutting it is also valuable as a reference book of pattern problems to be drawn from at convenience.

A glance at the list of chapter and section headings will give a clear idea of the scope and arrangement of the book.

AMERICAN ARTISAN

620 So. Mich. Ave.
Chicago, Ill.

Enclosed find check (or money order) for \$6.00. Send me THE NEW METAL PATTERN BOOK.

LIST OF CHAPTER AND SECTION HEADINGS

1. Terms and Definitions. Alphabetical List of Terms.
2. Drawing Tools and Materials.
3. Linear Drawing.
4. Geometrical Problems. Construction of Regular Polygons. The Ellipse. The Volute.
5. Principles of Pattern Cutting. Parallel Forms. Regular tapering Forms. Irregular forms.
6. Pattern Problems. Parallel Forms (Miter Cutting). Regular Tapering Forms (Flaring Work). Irregular Forms (Triangulation). Mixed or Combination Forms. Automobile Patterns. Index.

A Monumental Work—No Shop Is Complete Without It

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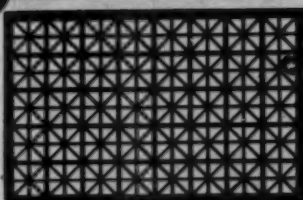
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MAKES ALL PIPES AND FITTINGS 100% SEAMLESS

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Never in all furnace heating history has anything so completely jumped into such popularity

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CLEVELAND, OHIO

PATTERNS

FOR STOVES AND HEATERS

FIRST-CLASS
IN WOOD and IRON

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ESTABLISHED 1835 TROY, N.Y.

IRON AND WOOD

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QUINCY PATTERN COMPANY
QUINCY, ILLINOIS

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for full
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HERE is the lightest, fastest and most efficient furnace cleaner on the market—you can reap profits—BIG PROFITS—right now with it.

Let us tell
you all about
it now

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Send me full details on the BRILLION FURNACE CLEANER.

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Address.....

A. A.

200-300 Park Ave., Brillion, Wis.

When writing mention AMERICAN ARTISAN—Thank you!

Founded 1880

Published to Promote
Better
Warm Air Heating
and
Sheet Metal Work

American Artisan

The Warm Air Heating and Sheet Metal Journal

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AN OPPORTUNITY

At the recent conventions of the National Association of Sheet Metal Contractors and of the National Warm Air Heating Association some very fine programs for carrying on the activities for betterment of the industries were promulgated. But it is not sufficient to expect committees to do all of the work. Every sheet metal contractor and warm air heating man should take it upon himself to offer his ideas and suggestions as to how best to work out these programs. AMERICAN ARTISAN gives you an opportunity to have your views aired. Let us have them. In this way they will come to the attention of the committee chairmen.

Points that Distinguish the HART & COOLEY Line

1

*A specially designed container
is their home until they're sold*



Packed in strong
wooden cases



Cases Serve
as Stock Bins



Each Register has Individual
Carton to Protect Finish.
Hart & Cooley Baseboard Regis-
ters are easy to handle, each
being packed in a strong card-
board container and shipped to
you in wooden cases which
make ideal stock bins.

EVERY man in the business knows that warm air heating is now an engineering success, ranking with vacuum cleaning and electric refrigeration... where in its gangling youth it often had to fight the "base burner"! It owes its present high place to the genius of the furnace installer and the furnace and register makers. In the register end, The Hart & Cooley Mfg. Co. has taken an enthusiastic part... never allowing a year to pass without contributing some practical idea.

It will be our purpose in these new advertisements to explain graphically some of the refinements of design which have kept The Hart & Cooley line well abreast of the line of advance.



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THE HART & COOLEY MFG. CO. NEW BRITAIN, CONN.

NEW YORK

1 East 42d Street

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61 West Kinzie Street

PHILADELPHIA

1600 Arch Street

ALSO: COLD AIR FACES, CEILING VENTILATORS, GRILLES, RADIATOR ENCLOSURES



Bishop Hill School,
40' x 80', 14' ceiling,
2 large class rooms, a
recitation room, hall
and cloak room.



The above picture shows the attic trunk line of the XXth Century Overhead System in Bishop Hill school. Note the offshoot pipes that distribute heat to the rooms below.

THE XXth Century Overhead System of Heating is solving many, many difficult heating jobs for dealers. Being a patented system it is an exclusive sales advantage for XXth Century dealers.

Why not send the coupon today for the facts about this remarkable system and the other advantages offered in selling the complete XXth Century line.

Overhead System Solves Their Heating Problem

Bishop Hill, Illinois
June 9, 1928

Prior to installing the XXth Century Overhead System of heating in our school in 1926 we had been unable to secure satisfactory heating results. The room directly over the heater was fairly well heated but pupils in rooms farther away had to wear overcoats and overshoes to keep warm during cold weather.

Now after using the XXth Century Overhead System for two winters we can truthfully say that this system is supreme. Our janitor and teachers tell us that rooms which were not heated before are now warm and comfortable. The heat never varies more than two degrees in any of the rooms no matter where located.

Not only does the XXth Century Overhead System give us the best heating results we have ever had but we find it more economical in fuel.

Respectfully yours,

B. J. Arngquist
President School Board

The XXth Century Heating & Ventilating Co.,
Akron, Ohio

Please give me complete facts about the Overhead System of Heating and your Dealer Proposition.

Name.....

Address.....

A.A.-7-14-28

QUESTION—Why does the XXth Century Overhead System of Heating heat rooms far away as evenly as those close to the furnace?

ANSWER—Because heat when traveling straight up its central pipe to the attic trunk line gains greater velocity which carries it farther away than the lateral pipes do in a regular installation.

When writing mention AMERICAN ARTISAN—Thank you!



American Artisan

The Warm Air Heating and Sheet Metal Journal



Vol. 96

CHICAGO, JULY 14, 1928

No. 2



Topeka, Kansas, Home of the Republican Vice-Presidential Nominee Which Is Equipped with a Warm Air Heating Unit and an Extensive Sheet Metal Roof

Republican Vice Presidential Nominee a Devotee of Warm Air Heat

Sheet Metal Also Giving Adequate Service On Topeka, Kansas Home

DOES the Republican nominee for Vice-President of the United States, Senator Charles Curtis, believe in keeping warm in the winter time, while at the same time he protects the health of his family?

Does this same Senator Charles Curtis believe in the power of sheet metal to protect his family from the elements, and especially from fire by lightning?

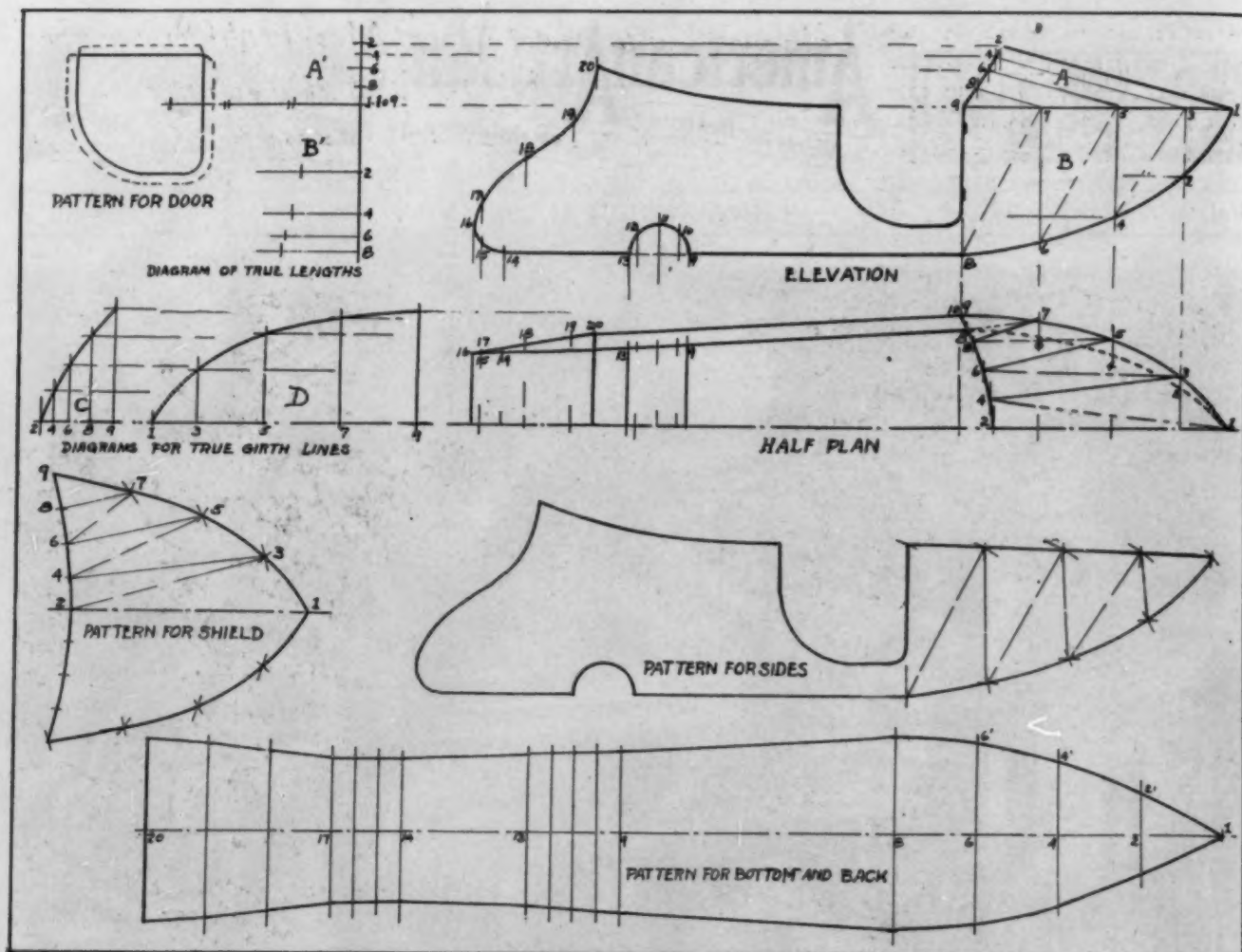
The answer to these questions lies in the knowledge that he has had installed in his family residence in

Topeka, Kansas, a warm air furnace. The residence, which is shown in the accompanying illustration, is located on the corner of Eleventh Street and Topeka Boulevard. The warm air furnace installation, which includes a No. 551 XXth Century furnace, has been in operation in this home since 1916.

The installation was made by John Baird, Topeka, Kansas.

It will also be noted that this home is equipped with a very elaborate sheet metal roof.

Sheet metal contractors and warm air furnace installers have an excellent opportunity to make capital of this warm air installation and sheet metal usage. Here is a man with money to purchase any kind of a heating system that he desires; with money to purchase any kind of a roof for his home that he should deem advisable from the standpoints of safety and service. His selection was warm air as a heating unit, and sheet metal as a roof covering for his home.



Patterns for Motorcycle Side Car

DEVELOPING Sheet Metal Motorcycle Side Car Patterns *REQUIRES SPECIAL* Consideration

By O. W. KOTHE, Principal St. Louis Technical Institute

USES for sheet metal are wide and varied.

Not so long ago one of my friends, Harry L. Schneider, Newark, New Jersey, sent me a number of very creditable drawings on automobile work and one of them was the motorcycle side car.

The first thing is to draw the outline of elevation, giving the right length and height of the different positions and then filling in the several curves as the case may require. After this the plan view is developed to take care of the width measurements. Each of these items must be carefully studied, in order that the designer may observe the relation between one and the other,

then making the development accordingly. So divide the curved lines of elevation into equal parts and drop them into the plan. This enables us to draw those lines and number the different points and bends as shown. After this we can develop the true lengths for the front part of the car and also for the shield. Here the elevation gives us altitudes which we utilize in the diagram A' and B'. That at A' is for the shield A of elevation and B' is for the body B of elevation. Then we pick the lines from the plan and set them over. In that way we develop the true lengths shown in the diagram.

Then because the top line 1-9 of

elevation and also 2-9 are not horizontal we must develop true girth lines for these positions. Here we can take the elevation distance, as 1-3-5-7-9, and set them on a base as in diagram D. Erect lines and then from each point in plan, as 1-3-5-7-9, carry over horizontal points to cut lines of similar number which enables drawing the outline for the developed girth. The same holds true for diagram C where the girth is taken from spaces 2 to 9 of A in the elevation and set in as 2-9 on center line of plan. Then erect vertical lines and cross these with horizontal lines brought over from points 2-4-6-8-10 of plan.

Now the bottom in the back of

the pattern should be laid out first and for this we pick the girth from 1 to 20 of the elevation and set it off on the center line and draw vertical stretchout lines as shown. Then we pick the plan widths with dividers and set them off as 2-2'; 4-4'; 6-6'; 8-8', etc. This enables drawing lines through all intersections and we have the outline pattern of the bottom and back which the student should follow.

The side pattern can be developed directly over the elevation, but in this case we reproduce the left part of the elevation and develop the front part by triangulation. Here for the base of the nose we use the spaces 1-2'-4'-6'-8' as the girth since these two lines must fit together. Then for the top we use the girth from the diagram D and by the process of triangulation of true lengths from B' the pattern is developed in the usual way.

Similar treatment is carried on with the pattern for the shield. Here the girth 1-9 is taken from diagram D and the girth 2-9 is taken from diagram C, while the true lengths are taken from diagram A'. The door pattern can be copied direct from the elevation and adding a slight edge for lap as well as for hemming purposes can be reproduced. In practice there is much more work necessary in making ribs and other reinforcements. Thus our diagram does not show, as we are concerned more with the development of surface patterns in this instance.

Wesley J. Johnson Becomes Special Representative of Standard Foundry and Furnace

Wesley J. Johnson has associated himself with the Standard Foundry & Manufacturing Company, DeKalb, Illinois, in the capacity of special representative. Mr. Johnson has been with the Hero Furnace Company for the past few years as manager of the Pittsburgh branch of that company. Prior to going with Hero he was sales manager for the Standard Foundry & Manufacturing Company from 1919 to 1922.

Pennsylvania Sheet Metal Men Hold Successful Meeting at Erie

*M. F. Liebermann Re-elected President—
Will Go to Lancaster Next Year*

THE Pennsylvania Sheet Metal Contractors' Association held its annual convention at the Hotel Lawrence, Erie, Pennsylvania, the last week in June.

Among the speakers present were President M. F. Liebermann, Secretary W. F. Angermeyer, Treasurer H. G. Hartline, National Secretary W. C. Markle, J. C. Miles, the Warm Air Furnace Fan Company, Edwin A. Scott, Harry S. Rogers.

The officers elected for the new year were as follows: President, M. F. Liebermann, Ambridge; First Vice-President, Emil F. Bordt, Lancaster; Second Vice-President, Jos. B. Kelley, Philadelphia; Secretary, Robert Warren, Erie; Treasurer, H. G. Hartline, Erie.

Directors were elected as follows: Louis Luckhardt, Pittsburgh; C. F. Lufhold, Reading.

President M. F. Liebermann, in his annual address, expressed his appreciation of the preparations made for the convention by the local association.

After appointing the several convention committees, he then touched on the high spots in the activities of the state association throughout the year. He mentioned the local associations at Erie, Johnstown, Pittsburgh and the Beaver Valley organization especially, for their successful accomplishments. He next referred to the work of the Trade Development Committee, stating that it is expected the book will be completed during the present year, and requested that members give their orders for copies in advance.

In commenting on the Standard Code he called attention to the fact that it has had wide distribution and has been enacted as an ordinance in quite a number of cities.

Among the other activities he mentioned were vocational training,

the amalgamation of the several associations in the allied lines carried on by shops in the sheet metal, roofing and furnace trades, overhead expense, legislation, the code of ethics, and then recommended that attention be given to changing the by-laws to conform with those of the National Association. He also stated that the report of the treasurer would show the financial situation of the association to be sound.

He dwelt at considerable length on the code of ethics and strongly urged that the members during the convention discuss this code, and adopt and practice its provisions.

Secretary and Treasurer's Reports

W. F. Angermeyer, as secretary, reported on the progress of the Trade Development Committee work and on his attendance at the meeting of the National Warm Air Heating Association at Urbana as a representative of the association. He stated that as a result of the publicity given to Sheet Metal Dan he had received inquiries from several cities not only outside of the state, but outside of the United States.

The membership situation, he said, is practically unchanged. The roster includes forty-one individual members, with locals at Bethlehem, Beaver Valley, Cambria County, Erie, Lancaster, Philadelphia and Pittsburgh. Fourteen new members have been added during the year and his books showed a balance in the treasury of \$384.50.

H. G. Hartline, as treasurer, stated that his books corresponded in cash balance with those of the secretary.

These reports were referred to the auditing committee.

National Activities

National Secretary W. C. Markle then outlined what had been accomplished by the Trade Development Committee along the lines of the

report made at the National Convention in Cleveland last month.

Charles H. Derby, vocational instructor in Academy High School, Erie, in an address, outlined the work which is being carried on in that city in vocational education. He stated that usually an apprentice who is not attending school is a liability to the shop owner for at least one year, but the public school system can and does function to relieve the owner of this liability. In Erie the plan followed in sheet metal classes is to give the boys instruction for three hours a day in shop work and three hours in related subjects. He advocated what is known as cooperative industrial education, under which the apprentices are employed at the trade and attend school for definite periods.

R. S. Hahn, chairman of the Overhead Expense Committee, gave an excellent demonstration of this subject. He placed on the blackboard the exact figures in connection with what might be termed a modest general sheet metal shop.

The total business of this shop for a year amounted to \$29,737.25. The productive payroll was \$10,631.38. The items making up the overhead expense totaled \$8,409.41. From these figures it was shown that the overhead expense was 78.7 per cent of the productive payroll and 28.3 per cent of the total of business.

J. C. Miles, vice-president of the Warm Air Furnace Fan Company, in his address, emphasized the possibilities for furnace dealers expanding their business in the warm air furnace field by cultivating industrial heating.

Harry S. Rogers, of the Sheet Steel Trade Extension Committee, spoke on the subject, "Pearls of Great Price." This part of his address corresponded with his address at the New York State convention the week previous, as reported elsewhere in this issue.

He related his experiences in connection with the tests made by the U. S. Bureau of Standards. Lancaster was selected as the next convention city.

George Harms Makes Appeal in Behalf of Trade Development

Says Every Member of National Association of Sheet Metal Contractors Should Buy Book

GEORGE HARMS, Chairman of the Trade Development Committee, the National Association of Sheet Metal Contractors, has a message to the members of that organization. He writes as follows:

"The Cleveland Convention of our Association is past and it was a very successful affair.

"I want to call special attention to the report of the Trade Development Committee, showing the work is progressing very satisfactorily, although not quite up to expectations of a year ago. I am quite confident that all copy will be ready for the printer about September 1st; and therefore we should be ready for distribution early in 1929.

"To do this requires additional money, this should be furnished by the members of our Association. We do not expect any contributions or loans, but if every member would order one or more books at \$10.00 each and pay for them in advance, or at least one-half the price, this would give us enough money to carry on the work to completion. It was shown at the convention that an issue of five thousand books should sell very readily, with this money all obligations can be met; former loans repaid, books distributed to the subscribers, and also pay back any money advanced by the Association.

"As this book will be of great value to the industry in general and to every Sheet Metal Contractor in particular, the request we make is not for selfish or Association gain, but for the benefit of everyone engaged in sheet metal work. It may please you to know that orders were taken for over three hundred books at the convention, and we believe that those of our members who were not at the meeting will also have placed an order.

"This letter is being sent to every member and therefore the request

does not apply to those who have already subscribed, unless they wish to order more books. Subscription blanks are enclosed herewith, and I request that you immediately send in your order and also check for either one-half or the total amount. The success of this venture depends altogether upon the action of our members. If you therefore will give this prompt consideration, the work can progress in the manner anticipated."

Chicago Solder Company Develops New Paste Core Wire Solder

A new item of Kester solder, Kester paste-core wire solder, has been placed on the market by the Chicago Solder Company. This is made of virgin tin and lead in a hollow wire form, filled with a soldering paste that is pocketed in such a manner as to allow just the right amount to be released as heat is applied to the solder.

Users of soldering paste will welcome this item for both solder and paste are combined, which simplifies the soldering and at the same time, reduces the cost.

For the same reason that modern merchandising is doing away with the old way of doing business—so



Showing the Solder

will Kester paste-core solder help to do away with the newer fully successful paste and solder that up to this time have been sold and used as 2 separate items, say the manufacturers.

"Kester paste-core solder combines the two items for the price of one. The slogan in plain view of all your customers 'Requires only Heat'—will conserve your time now given to needless explanation."

HOW TO TRAIN SALESMEN

By F. H. FLOYD, Ward, Dossett, Floyd Company, Waco, Texas

THE average salesman, according to our experience, is not quite the type of man that we would term a college graduate or a man of keen intellect, able to grasp instantly the subject before him. He is a man that we really must start in the A B C's. He must get the real fundamentals of salesmanship, the real fundamentals of the work that he is about to do.

Of course, there are many ways to do this. I should not attempt to enumerate all of them, but I should like to leave with you just one or two thoughts of how we have been attempting to accomplish that goal in our own organization.

We realize that each salesman must know the merchandise that he is out to sell. I mean by that that he must know the merchandise in itself, not all the sales story—that will come later, but he must know the characteristics of the individual article. The only way that I know of handling that is by actual demonstration to the man. Let him get his hands on the article; if it is nothing more than a solid piece of material, let him handle it himself, let him have it and touch it, let him know the touch of it. I don't believe there is any stronger sales appeal to anyone than that of the eye. If you can please the eye, you certainly have won a point in your sales.

I find it just as important to sell the salesman on the piece of merchandise that he is going to resell as it is for him to sell the dealer; certainly if he is enthused over it he is going to carry the story on in a real intelligent manner.

We also have a peculiar situation and that is the relation of one item to whole. It sounds like things are beginning to get complicated. He must know that item, and he must know its relation to the balance of the whole article with which it is to function. That brings on a considerable bit of discussion; no doubt. Another important factor that we

realize is knowing its best outlets. What is the best outlet for that individual piece of merchandise in the market?

Training, of course, and by example, is the only way that he can learn that.

How to present those sales points that will naturally be applied, is another phase. Of all these angles that we are going to teach the salesman, I believe he can be best handled to start with, in an elementary manner, by personal contact. We have found it successful, and no doubt many of you have, to go right out in the field with the man and help him fight his battle. When he runs into a brick wall, show him how to go around it, show him how to dig under it, how to be able to do the job that he is attempting to do.

We do not ask of our salesmen anything that we would not be willing to tackle ourselves. I don't want that to sound a bit egotistical. I do not mean it that way; I mean it from the standpoint that if you ask him to do a job and he comes back with the story that he doesn't know how and you are not able to show him, certainly there isn't any way to lick the situation.

The next important feature is sales meetings. I am attempting in ten minutes to say something on the point of salesmanship that we talk to our men about constantly twelve days a year in sales meetings. We hold two sales conferences a year, each one lasting one solid week. Through that time we devote the morning sessions to actual demonstrations and clinics, carrying through the complete chain of thought or use of the item, letting the man, oftentimes, step up and put that article into play.

The afternoons we devote to general discussion of the morning demonstrations as well as actual sales points, psychology of sales, and mental training. Without proper follow-up, of course, this would not

amount to very much. We follow it up in our sales letters by using one individual sales point at a time, bringing that out very clearly, and not trying to mention too many sales features or all the reasons why he should sell that item, in one sales letter. We work on the step-by-step principle.

There is another little psychological effect that can be had upon the salesman that we appreciate, and that is urging him to have his dealers play a part in his training. If the dealer is called into counsel in salesmen's training, that dealer naturally feels that he is playing a real part, an important part, in an individual salesman's success or failure, whichever it may be. By writing letters to various dealers from time to time, dealers that we know have done a good job on some particular phase of merchandising, and asking them to assist us in giving our salesmen the proper light on it and also urging the salesman to call for assistance, those dealers realize a responsibility and take pride in it; they do not by any means say that they haven't time, they are tickled to death at the opportunity, and their chests go out with pride when talking about it.

Conference of Commissioners to Take Up Various Aspects of Lien Laws

The conference of Commissioners on Uniform State Laws meets in Seattle, at the Olympic Hotel, on July 17. As the most important order of business the conference of eminent legal authorities will take up the various aspects of the present modified draft of the proposed uniform lien law as developed by a committee of the Department of Commerce.

Much depends on the action taken by this conference. Their suggestions, criticism or approval will have weight with the drafting committee. They will be dealing with much more than legal technicalities, for the lien laws have shaped construction business history for better or worse during many decades in the past.

Explains Psychological Elements of Advertising Copy Preparation

Dr. Watson, Author of the Psychology of Behaviorism, Says What People Are "Conditioned on" Counts in Copy Appeal—Advocates News Angle in Ads

IT'S WHAT the people are "conditioned on" that counts in the preparation of advertising copy. That is the question.

The term, "conditioned on," was created by Dr. John Broadus Watson, writer of the psychology of behaviorism, and a vice-president of the J. Walter Thompson Company, New York advertising agency, and he sprang it on a crowd of advertising agency men attending a lecture at the Art Center in New York the other day. The subject of his lecture was "How We Behave Toward Advertisements." Dr. Watson told of laboratory tests involving a contraption to fit on the inside surface of the cheek by attaching a certain part to an air pocket with the tube out to test response by the dripping of saliva.

Out of the entire discourse followed by pertinent questions from the floor the main point appeared to be, as succinctly expressed by Dr. Watson, that "the fundamental stimulus will produce the reaction and you take any other object and condition the individual so that the conditioned stimulus will bring about the same reaction. You haven't produced order or logic, but have set up a physiological response."

Earlier in his address Dr. Watson had admitted that there was a lot of "bunk" in psychology, but later had added that the reaction sought in advertising was simple enough when understood.

"We want the man to reach in his pocket and go down and purchase. That is the reaction. What we are struggling with is the finding of the stimulus which will produce that," the lecturer said.

Explaining his reasoning by example, Dr. Watson pointed out that copy writers try always to put the news element into their headlines, "because we are fundamentally con-

ditioned on newspapers." He said advertising was changing its point of view today and that the copy of twenty years ago was "pretty close to modern times in advertising, it is readily seen."

"There never was a better kind of advertisement than the old patent medicine copy," he said. "There never was anything that made people go into their pockets faster. We broke away from that fifteen or seventeen years ago and began hunting for a different sales story. I am not ready to condemn this. I don't know how long this other will work. We are working on a logical story. We fill them full of copy and make them like it. Reason why copy. I am not saying it doesn't work. Perhaps it does."

"On the other hand, it seems we are switching around into a little more primitive type of thing no matter how elegantly done, into the so-called personal type of advertising, where, instead of saying Mrs. So-and-so liked this and it cured her of boils, etc., we have now dressed up our advertising and we get Mr. So-and-so, someone known, to endorse our product. We have gone back to something people have already been conditioned on and there may or may not be any relation between this person and a certain kind of cigarettes or this person and a certain brand of cosmetics; but the point is you lead in with this thing that the individual is already conditioned on and then put in the cigarette or the cosmetic, although there may not necessarily be a logical relationship between them at all."

After noting the deficiencies of magazines of national circulation as giving identical stimuli to persons and localities variously "conditioned," Dr. Watson pointed out that "of course there are the newspapers." But he found fault with

the medium, because it too, he said, was tending toward mass production and he complained of the "staleness" of yesterday's newspaper. He wanted "good magazines" for the different sections, Middle West, New England, etc. Instead of charting the market sections, he would chart psychological center for the most part.

Adding Life to Conductor Pipe

Conductor pipe is a hard use of sheet metal, says George L. Bennett, director of Building Trade Extension of the Sheet Steel Trade Extension Committee. Most roofs form acids and these come off in the first trickle of rain. There is very little water and much acid, and these run down the conductor and cut it out, not evenly, but in the line which the trickle of water takes. It cuts from the inside and not from the outside. The inside is seldom protected except by the galvanizing. The outside may be painted, but that will not add much to its life. Conductor pipes connected into a sewer pipe carry vapor practically all the year around. It therefore acts as a vent or chimney to carry vapors and sewer gases, some of which materially hasten the corrosion of all metal.

This service is very hard and conductor pipes sometimes last only eighteen to thirty months, while the gutter will last a year longer, roof sheet several times as long and a cornice even longer. They do not all have the same service, but the public and even builders do not differentiate between those services and say the material is no good. To overcome this feeling we are working to have conductor pipe sprayed with paint on the inside with acid-resisting paint after it is formed and before it comes on the job. We think we are going to succeed in this and add to the life of the conductor. The National Paint and Varnish Research Institute have undertaken this work and are now making tests to show the length of life between a conductor coated and uncoated.

Unethical Owner Buys Poor Service and Sub-Standard Materials

*Bid Peddler Demoralizes
the Building Industry*

RELATIVE to price cutting on bids to the extent that profit is shaved away, it seems unbelievable that any contractor would be so short-sighted as to think that he can make money or build a reputation for reliable workmanship by cutting his prices.

Price cutting is not confined to sub-contractors; general contractors do their share of it. A contractor in an east central city figured a job in a small town down in the state. The engineers notified all bidders that the owner would open bids on a certain day and invited all bidders to be present. This procedure looked fair and above board and all contractors figuring the project came to the letting. There were about 16 contractors present on the specified date.

Each of these contractors was called into conference in turn. After this process had kept up for a while, the evidence pointed to the fact that the letting was not fair and above board and that the owner was resorting to bid peddling. Some of the contractors compared notes with those who had been in conference, and after the session was all over the following facts were ascertained:

The engineers and owners had all of the bids opened and tabulated. After calling a contractor into conference he was at once informed of the amount of the low bid and asked if he would cut under that price. If the contractor was then foolish enough to cut in the hopes of getting the job the new low price became the mark for someone else to shoot at.

The entire day was taken up with the proceedings. Out of the sixteen contractors present at the letting enough "bit" on the owner's proposition to effect such a drastic cut that all hope for a profit on the particular project was eliminated.

Likewise all chances for erecting a well constructed and workmanlike job were lost to the owner.

The original bids ranged from \$101,000 to \$92,000. By peddling the bids the owner pulled the low figure from \$92,000 to \$78,000 and called it a day. He figured to himself that he had made a saving of \$14,000 and congratulated himself on his shrewdness. He depended on the engineers and the plans and specifications as assurance that he would get the kind of job he wanted. The owner's faith in a set of plans and specifications is childlike when held to under such circumstances.

The contractor who put in the low bid was undoubtedly in error, but certainly could not be expected to be quite so foolish as the owner expected him to be. Once the excitement of auctioning off the job had subsided, the contractor knew that he had been framed by bid peddling and that he faced a profitless job which would represent a net cash loss to himself if carried out as the owner expected.

In this case the contractor who was jockeyed into taking a \$92,000 contract for \$78,000 lost an opportunity to render adequate service and to receive remuneration for that service. The subcontractor that performed trade operations on that job was forced to meet the same situation that confronted the general contractor. He had to face bid peddling methods, cut-throat competition, and had to violate his standards of workmanship to meet specifications originally forced into effect by the owner.

Even the craftsmen and laborers on the project were not free from the bad practices and evil effects caused by the owner's unethical efforts. Standards of workmanship were thrust aside. Corners were cut. Work was speeded up. Fore-

men with good reputations in the trades were looked at askance. Slipshod habits were formed against the will of the men themselves.

No one profits on an unethical deal of this kind. The owner thought he saved himself \$14,000, but in reality he lost more by this unethical practice of peddling bids than if he had been open and above board in his dealings with the contractors.

It makes no difference whether the amount involved is \$10 or \$10,000 or more, the principle is all the same. As soon as a contractor or sub-contractor enters the price shaving class he is done for. The thing is as simple as A B C. If not enough money is involved in the deal to cover the cost of the materials, labor, miscellaneous expenses incident to the completion of the job and a profit to the contractor or sub-contractor, the tendency will be to skimp. All the supervision in the world will not prevent the contractor or sub-contractor from slipping in inferior materials or in some way cutting the corners in an attempt to make up the profit which he was fool enough to let slip through his fingers when he signed the contract.

No sub-contractor ever got rich cutting prices beyond the point where he can make a fair profit.

Learn All You Can From the Salesman

If you are the sort of man who won't take advice from anyone, you are going to miss many opportunities for help which would benefit you greatly.

When a man grows a big head, feels that he can get along without the assistance of anyone, then others may soon note a decline in his effectiveness and success.

The really big man—the really successful man—is the one who is ever on the alert to get every little bit of knowledge possible to gain.

The biggest men in the country hold conference for the purpose of getting the ideas of other men, and they hold meetings of their employes for the same purpose.

Random Notes and Sketches

By Sidney Arnold

I have just learned that Major A. W. Bond, Past President of the Old Guard Southern Hardware Salesmen's Association, who has been seriously ill for some time past, is very much improved in health. In fact, he has improved to the extent that he has returned to his home from a hospital in Baltimore where he has been confined for a long time. This comeback staged by Major Bond is all the more remarkable in view of the fact that he is 85 years old. Needless to say that his many friends were deeply concerned over his illness, but he is coming back in fine shape and they may rejoice. That is indeed good news. It might also be mentioned that Major Bond is also a very much esteemed past member of the Advisory Board of the Old Guard. Let us hope we shall have him with us until he is 100. The world is indeed better for his being a part of it.

* * *

A little bird told me that Arthur J. Madson, who was formerly with the Wheeling Corrugating Company, Chicago, is now again with that company in the capacity of City Sales Manager and is glad to get back into the sheet metal industry. He hopes to get around to see all of his friends in the trade and give them the old hand-shake. Well, we're glad to see you back, Art.

* * *

During his first few days in camp Dave Farquhar, Chicago manager of T. & B., was the victim of so many practical jokes that he doubted all men and their motives. One night while he was on guard, the tall figure of one of the officers loomed up in the darkness before him.

"Who goes there?" he challenged.

"Major Moses," replied the officer. Farquhar scented a new joke.

"Glad to meet you, Moses," said Dave, cheerfully. "Advance and give the ten commandments."

A Chip Off the Old Block

School Inspector to Pretty Teacher—"Do you teach observation?" "Yes."

"Then I will take the class. Now, children, shut your eyes and sit still."

Following this the inspector made a slow whistling sort of noise and followed with, "Now, children, what did I do?"

For some time there was no answer but ultimately Little Douglas Strong (Ros' Young Hopeful) piped out, "You kissed teacher."

* * *

Those who have never been there get a great deal of pleasure out of poking fun at the college graduate, but one thing a fellow gets in college is a wonderful poise, as I had occasion the other evening to observe while dining at one of the hotels in Chicago. One of the much maligned ones arose from the table and walked toward the door. He was passing the house detective at the entrance when a silver sugar bowl dropped from his bulging coat.

The guest glanced calmly at the officer, then turned with an expression of polite annoyance toward the occupants of the room. "Ruffians," he said, "who threw that?" and walked out.

* * *

Well Qualified

Owing to the absence through illness of the woman who taught the senior girls' Bible class at Johnstown, Pennsylvania, Gus Pfeffer was asked to undertake the duties for the day. He consented, but before beginning he said, smilingly: "Now, girls, I want to conduct your class just as your teacher does, so you might tell me what she does first."

Imagine the embarrassment of Gus when, after a short pause, a pert miss of 16 answered: "Well, she always kisses us all round!"

The prize for the saddest event of the month goes to Max Carsen, Chicago manager The Unishear Co., Inc., who lost himself while driving one dark night. He saw a sign on a post. With difficulty he climbed it and struck a match and read: "Wet paint."

* * *

Blame the Telephone

Rudy Guenther, Accurate Sheet Metal Works, Chicago, came home tired after a long day at the office. The family gathered for dinner. Rudy bowed his head to ask the blessing and all was quiet.

"This is Guenther speaking—" he began.

* * *

Roy Harrison, Rudy Furnace Co., whose daughter is already showing signs of following Mr. Edison, was sitting out on the porch a few nights ago enjoying the balmy evening air. His daughter, who had been playing about the garden, came rushing up with signs of suffering and pain, holding her left thumb in her right hand.

"What's the trouble, baby?" solicitously asked Roy.

"Daddy," answered the girl, "I picked up a bug and one end of him wasn't insulated!"

* * *

Tempting

The office of the Chicago Sheet Metal & Roofing Company was deserted except for the cashier. A. R. Gibb of Benjamin Wolff Company stepped in.

"Do you keep motor car accessories here?" he asked.

The pretty cashier smiled sweetly. "Only me," she replied.

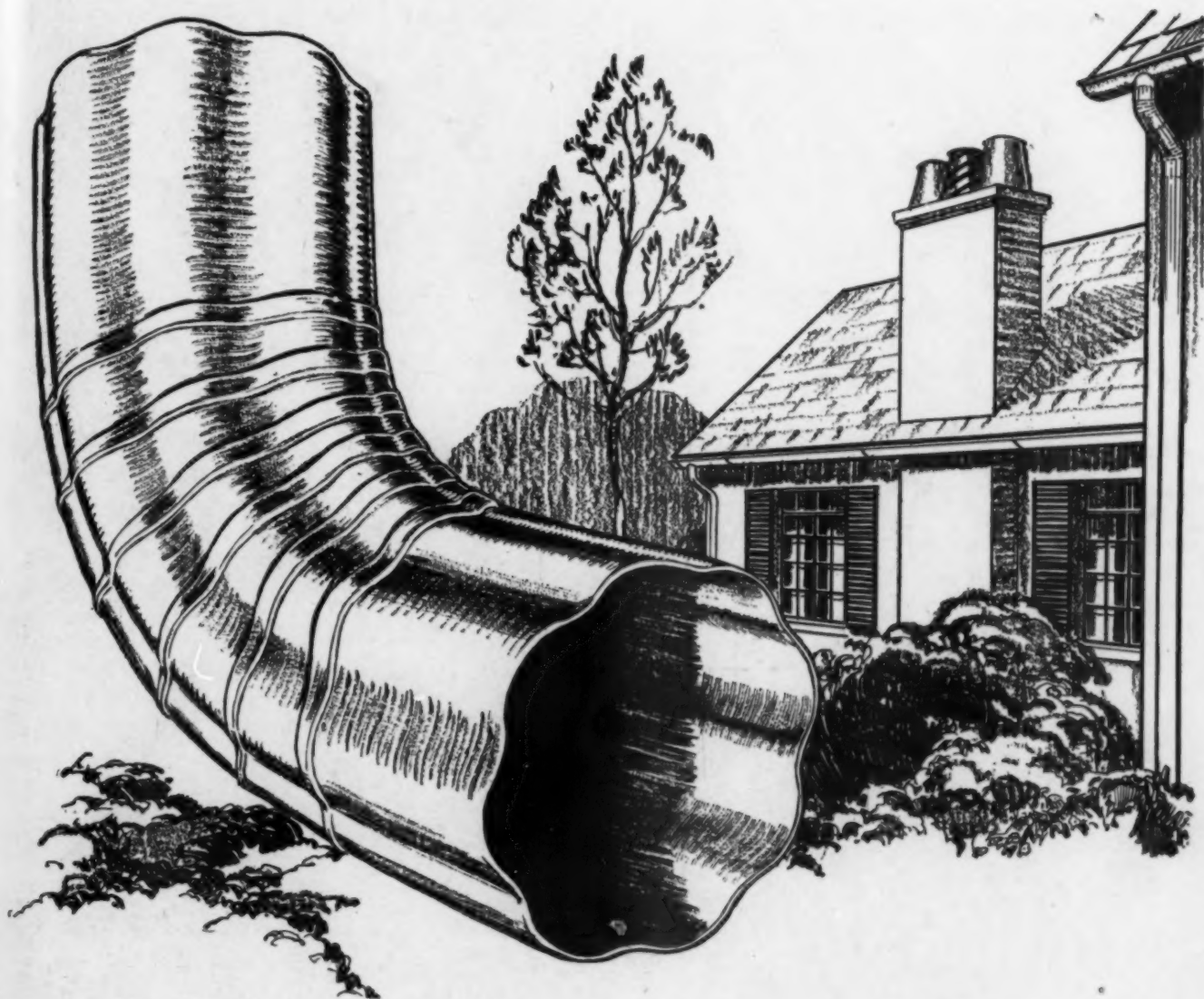
* * *

Force of Habit


William F. Wahler, 3715 Elston Avenue, Chicago, was sitting in the park one day recently when he inadvertently overheard the following remarks:

"May I take your picture?" said the photographer to the telephone operator who was out horseback-riding.

"Yes," said the voice with the smile, while she tried to wheel her steed into line. "But hold the line a minute while I adjust the plug."



Lupton Elbows

When you make replacements on a job where Lupton Elbows were originally used, they're as easy as new work. This is because Lupton Elbows are machine-  [Specify them to your Jobber] made in one piece and are the same in size, shape, and girth year in year out. Lupton Elbows always fit.

DAVID LUPTON'S SONS COMPANY

Allegheny Avenue and Tulip Street, Philadelphia

Where Materials Are Most C



Transportation Building,
New York City

Bricken Broadway
Building, New York



Court & Remsen Build-
ing, Brooklyn, N. Y.

All the buildings illustrated on these
two pages are roofed with Edwards
Spanish Tile made of Anaconda Copper.

THE specifications for big building projects are drawn up with the greatest care. Every material specified must justify its selection. That explains why sheet metal work of Anaconda Copper figures on so many specification lists. Architects and contractors have the utmost confidence in Anaconda Sheet Copper, because they know its quality and dependability.

The buildings shown in this advertisement have Spanish Tile Roofing and sheet metal work of Anaconda Copper, furnished by The Edwards Manufacturing Company, Cincinnati. This organization specializes in sheet metal roofing and building materials fabricated from Anaconda Copper.

Advertising on a nationwide scale has made the story of Anaconda rustproof metals—Copper, Brass and Bronze—familiar to millions of people. The telling of this story goes on more intensively

ANACONDA COPPER B



Carefully Selected ANACONDA Has the Call..

than ever, making quality work with Anaconda metals increasingly profitable for progressive contractors.

Anaconda Copper is the product of the world's largest and most experienced manufacturer of Copper, Brass and Bronze. Stocks in the form of Sheets, Rolls and Economy Strips are maintained by leading distributors, assuring prompt deliveries in all parts of the country.

Anaconda Copper is easy to identify, for every sheet and strip carries the Anaconda name stamped in the metal. Be sure this quality symbol appears on the sheet copper you use.

THE AMERICAN BRASS COMPANY

GENERAL OFFICES: WATERBURY, CONNECTICUT

Offices and Agencies in Principal Cities

Canadian Mill: Anaconda American Brass Ltd., New Toronto, Ontario

36th St. and 8th Ave.
Corporation Bldg.,
New York



Hyde Park
Hotel,
New York



535 Eighth Avenue Building,
New York

BRASS and BRONZE





FAC-SIMILE OF BRAND

OSBORN'S "COPPER BEARING" STEEL SHEETS, KNOWN AS "OSBORN'S LEAD COTE," ARE HEAVILY COATED WITH LEAD. "LEAD COTE," THOUGH ONE OF OUR LATE OFFERINGS, IS STEADILY GAINING IN POPULARITY AND DEMAND. ONLY "SATISFACTION" COULD BRING ABOUT THIS CONDITION.

THE J. M. & L. A.
OSBORN & CO

CLEVELAND—BUFFALO

"Everything Used in Sheet Metal Work"

COMBINING WARM AIR AND OIL HEATING

By R. W. STOCKWELL

BURNING oil in warm air furnaces is the subject of much argument among oil burner men and also among the manufacturers of warm air furnaces. You have been inclined to put any kind of a burner in any kind of a furnace and hope for luck. We, on our part, have been inclined to tell you that all furnaces are well adapted for burning oil, which as you know is not true. A frank discussion will do good all around.

Much of the trouble has arisen from the fact that furnacemen as a class know little about the principles and use of oil burners, and oil burner men know less about the strength and weakness of warm air furnaces and heating systems. Most of you know a good deal about steam and hot water. In fact, many of your burners are rated as good for so many feet of radiation, but few of you know how to check a warm air installation and know that it is adequate for the job. The apparent fact that the furnace is O K is not enough.

Correct Installation Important

The furnace is only a part of the system, an important part, but still only a part of a warm air heating plant. The whole installation must be a completely balanced system. If you put a burner in a good furnace improperly installed, with poor air circulation, you may heat the house but you may be charged by the owner, within a short time, with ruining his furnace. With steam or hot water plants having grate areas too small, or draft too poor to burn the necessary amount of coal, the installation of a burner may give good heating results with no damage to the boiler because the metal parts are held at a safe temperature by the steam and water they enclose. But with a warm air furnace the metal can rise in temperature nearly to that of the burning gases. This,

of course, cracks and warps the metal out of shape and gas leaks occur.

The question naturally occurs, "Why should you have to know about the principles of warm air heating?" That is the business of the warm air heating man, and you assume that he knows his stuff. Well, he does, but there are still a lot of hot air men and hot air furnace installations. For that reason

The author of this article, R. W. Stockwell, has set forth in the article some of the reasons why oil burners have not been more of a success in warm air furnaces. His recommendations as to how and where an oil burner should be installed are basically sound, and should be carefully considered by all warm air furnace installers who come in contact with this phase of warm air heating.—THE EDITOR.

you must know whether the system is adequate before you install your burner.

I wonder if you realize that while a type of stove with a jacket has been used for centuries, the warm air recirculating system is of very recent origin, practically the last ten years. Some companies were installing good warm air systems before that time, but it was due to individual experience and was not based on any definite scientific data.

The National Warm Air Heating and Ventilating Association, an organization of manufacturers in conjunction with the research department of the University of Illinois at Urbana, have spent the last ten years in research work to gather basic data on which to build a code for the installation of warm air heating systems. The results are now tabulated and simplified for

general use and called the Standard Code. This code has been discussed and finally adopted by all the engineering societies interested in heating work, and in many cities the code has been adopted as a part of the Building Code. Chicago, St. Louis, Indianapolis, Columbus and many other cities have adopted it.

Room Heat Loss Converted

The code is based on the use of coal as a fuel with a maximum combustion rate of seven pounds per square foot of grate area per hour and a register temperature of 175 degrees. The heat loss from each room is determined from standard tables used by all heating men but much more simplified. The amount of heat required to heat each room is converted into the necessary square inches of round basement pipe called leaders, and the sum of the leader pipes is equivalent to the rating of the furnace in square inches. So when you see a furnace rated at 500 square inches it means that leader pipes of that total capacity can be taken off of it.

Now, we have a very unusual practice about rating warm air furnaces. The manufacturer has as much to say about the rating of his own furnaces as you do. All ratings are made by an official of the National Warm Air Heating and Ventilating Association and checked by the Research Department of the University of Illinois. The basis of rating is the ratio of grate surface to heating surface, and twenty feet of heating surface to one of grate area, has been taken as the standard basis with additions and subtractions for a greater or less ratio. When you see a furnace bearing the rating of the Associated and installed according to the Standard Code, you are safe in installing a burner of proper type in that furnace, confident that it will give good results. But you ask, "What about the furnaces installed before the days of the Standard Code?" My

advice would be to check it yourself with the code, a copy of which can be obtained from any Warm Air Furnace Manufacturer, or Allen W. Williams, Secretary of the National Warm Air Heating and Ventilating Association at Columbus. Better still, make the acquaintance of a good warm air installer in your neighborhood and work with him. He can tell you if the job is near Code Standard. If it is not, you had better stay away from it. All you will get is grief. If it won't heat properly with coal, it probably will not do any better with oil and will cost a lot more to operate.

Furnace Should Be Recemented

Assuming that the furnace and duct system is adequate, before you install a burner in an old furnace, it should be torn down completely and the warm air pipes thoroughly cleaned. If this is not done the accumulated dust in the piping will come through the registers and give the impression of leaks. The entire furnace should be completely remounted, first brushing all joints to get a clean surface for cement to adhere to; then the furnace should be slowly heated, possibly by a little kindling, in order to dry the cement slowly. Furnace cement has a considerable percentage of moisture which, if heated rapidly, breaks through the mass in the form of steam jets and in many cases leaves it as porous as a sponge. Many an otherwise good furnace job has been ruined in this manner.

The burner should not be placed in the bottom of the ash pit as heat from the lower section will radiate into the cold air intake or chute and check the incoming flow of cold air. Nor should it be installed in the feed door which cuts down the area of radiation. The proper place is at the grate ring level because all warm air systems are designed for the application of heat above the grate line.

Fan an Aid to Undersized Furnace

About fans. Undoubtedly fans are a great aid with an undersized installation and increase its effi-

ciency and capacity. How much, depends on the velocity of air passing over the hot surfaces. By capacity we mean the maximum B.t.u. delivery that can be gotten from the furnace without damage.

A recent test in our plant showed an efficiency based on stack loss of fifty-two (52) per cent on a standard furnace, and by use of only sixteen inch exhaust fan increased the efficiency materially. Another test made on a special oil burning unit having a blower consisting of two No. 4 Sirocco wheels mounted on a common shaft showed that almost a flat efficiency curve could be obtained from varying rates of oil consumption ranging from a minimum of 1.6 gallons per hour and seventy-eight and one-half (78½) per cent efficiency to 8.9 gallons per hour and 80.8 per cent efficiency. The air velocity leaving furnace was about 1,250. When the velocity was increased to 1,500 feet per minute, the efficiency increased to 84.3 per cent. This furnace would be useless for residence work. Its air velocities would be too high and power consumption prohibitive.

However, I believe a modified form of this arrangement will one day be used in warm air furnaces for oil burners. There has never been a furnace designed to any type equally efficient for coal, gas and oil. Most furnace equipment made today is designed for coal, though warm air gas-burning furnaces have been on the market for a few years. The warm air men are studying the problem of furnaces adapted to the use of oil fuel exclusively, and I look to see several on the market very shortly.

What Is an Ideal Oil Burning Furnace

The ideal warm air furnace for oil will have a large combustion chamber to take the initial expansion of the gas, a long flue gas travel with a baffling arrangement to prevent stratification of the hot gases, but with low enough resistance to obviate the use of thermal dampers. It should have several times the radiating surface of the present type of furnace; the hottest

part should be the whole top surface to feed air of equal temperature to the leader pipes. The bottom should be cold to allow the easy entrance of cold air. The air passages should be relatively small and a fan operating with the burner should give a relatively high air velocity through the narrow air passages. The flue temperature should be about 400 or less and the furnace efficiency should be about eighty (80) per cent based on stack loss. Finally the whole installation should be sold for about two-thirds of a good hot water job.

When such a furnace is on the market the man of moderate means should be able to afford the luxury of an oil burner, and the advantages which a warm air system alone possesses—low first cost, good air circulation, quick temperature control, humidity inherent with the system, and a simple fool-proof installation.

Actual Check Shows Power of Window Display to Produce Business

Exceedingly interesting, these figures sent out by the International Advertising Association in a recent bulletin:

"An instance is recorded in which a drug store made a three weeks' test of its windows. All display material and merchandise were removed from the windows and simple drapes substituted. The loss in sales in the various departments was:

Specialty sales fell off.....	41%
Candy sales fell off.....	32%
Rubber goods sales fell off....	22%
Toilet goods sales fell off.....	14%
Soda sales fell off.....	14%
Stationery sales fell off.....	10%
Prescription business sales fell off	2%

"The total loss in sales amounted to nearly \$3,000. Needless to say, the druggist not only hastened to return to the use of his windows for display purposes, but spent considerable money to improve them."

All of which is simply another way of emphasizing the money making value of good display windows.

Report of Committee on Heating and Ventilating of Garages

IN the interest of fire protection, proposed regulations governing the construction and operation of bus garages prepared by the Committee on Garages of the National Fire Protection Association, were adopted as a tentative standard at the annual meeting of the Association in Atlantic City, New Jersey, May 7-10, 1928.

Abstract

The Code as submitted for tentative adoption after revision from the preliminary form in which it was presented last year, covers the construction of bus garages, with limitations as to height and area and other features, drawn with consideration of the high unit value of the bus and the serious impairment of transportation facilities resulting from fires in bus garages. The regulations provide for the separation of hazards, such as repairing operations, painting and heating plants from the main garage area, and for mechanical ventilating systems wherever ample natural ventilation is not obtainable. Fire protection, the storage and use of flammable liquids, housekeeping and various operating details are also covered in the regulations.

Committee

H. E. Newell, Chairman; K. W. Adkins, F. H. Alcott, E. P. Boone, K. B. Brier, E. K. Campbell, A. M. Daniels, W. K. Estep, R. H. Goodwin, Louis Harding, G. C. Hecker, W. F. Hickey, A. D. Knox, R. C. Loughhead, Ray Nelson, I. Osgood, R. E. Plimpton, A. M. Schoen, H. S. Smith, John Stilwell, J. F. Temple, J. S. Trump, W. B. White and Wm. P. Yant.

The abstract from the code consisting of Sections 15 to 19, given in the following paragraphs, quotes the regulations covering heating and ventilation and is submitted to the American Society of Heating and Ventilating Engineers for tentative adoption. In the preparation of this work E. K. Campbell represented

the Society and he was assisted by Thornton Lewis, W. H. Carrier and E. B. Langenberg.

Section 15

(a) Garage heating plants should preferably be located in a detached building. If within the garage, the heating plant shall be placed in a separate room used for no other

"The Garage Heating Code as submitted by the Committee is in tentative form only and is being put out so that everyone may have an opportunity to study it. An opportunity is now given for constructive criticism which will improve the Code to such an extent that it will be acceptable to everyone, while at the same time proving to be a fire preventive measure.

"Such a Code is necessary, as the disastrous fires caused by open fireplaces and stoves have created a tremendous loss in life and property, and this Code should make every garage safer in every respect. The Code will not go into effect until its final approval in May, 1929.

"E. K. Campbell, Kansas City, Nebraska, is the Chairman of the Garage Heating Code Committee of the American Society of Heating and Ventilating Engineers and all communications should be addressed to him."—E. B. Langenberg.

purpose and cut off horizontally and vertically from all other parts of the building by reinforced concrete walls not less than 6 in. thick, or masonry walls not less than 8 in. thick.

Openings in such walls shall be restricted to those necessary for heating ducts. There shall be no opening between the firing space of any heating apparatus and the gar-

age. Entrance to room containing the heating plant shall be from the outside only.

All air entering the heat generating plant for combustion purposes shall be drawn from outside the building.

(b) Sufficient heating capacity shall be provided to permit the operation of the ventilating system in the coldest weather, and at the same time maintain an inside temperature of not less than 40 deg. fahr.

(c) No method of heating shall be used which permits flame in the garage or in any communicating room.

(d) Motors used in connection with heating system shall be of the constant speed type. All switches for such motors shall be of approved design and installed in compliance with the National Electrical Code. Three phase motors shall be protected against single phase operation.

(e) The use of steam plants heated by either direct or indirect radiation is permitted, provided the requirements of the ventilating section of these regulations are complied with.

(f) Unit heaters employing steam generated at some other point are permitted provided the requirements of the ventilating section of these regulations are complied with, and provided further that fans and motors shall be located in compliance with the National Electrical Code.

(g) Steam blast systems with central fan and coils together with ducts are permitted provided the requirements of the ventilating section of these regulations are complied with. The heating coils of such systems shall be separated from the firing space by masonry walls at least 8 in. thick.

(h) Warm air furnace blast systems of heating are permitted provided the requirements of the ventilating section of these regulations are complied with. The air space surrounding the furnace within the heating chambers shall be separated from the firing space by a masonry wall at least 8 in. thick.

This wall may be pierced only by the feed and ash pouches of the furnace.

(i) Recirculation of air within the garage is permitted provided the provisions of the ventilating section of these regulations are complied with. In addition to the air drawn from the outside as required by Section 16 (d) the volumetric contents of the garage shall be recirculated once every 20 minutes.

(j) In central furnace fan plants, 5 per cent of the air moved by the fan shall be taken direct from outside of the building through a duct which shall deliver the outside air to a point near the floor on which the fan rests; the duct shall be open at all times and the air supply which it provided shall be without control.

(k) All fans used for recirculating air within the garage or exhausting air from the garage shall be of non-sparking type.

Section 16. Ventilation of Storage Sections

(a) These regulations shall apply to the following garages:

1. Garages housing 35 or more motor vehicles with 3 or more walls pierced with openings.

2. Garage housing 25 or more motor vehicles with 2 walls pierced with openings.

3. Garages housing 4 or more motor vehicles and located above ground but having less than 2 walls pierced by openings and exposed to the outside.

4. Garages housing 4 or more motor vehicles and located below the level of the ground.

(b) Natural ventilating may be employed where it is practicable to maintain open windows or other openings at all times. Such openings shall be distributed as uniformly as possible in at least two outside walls. The total area of such openings shall be equivalent to at least 5 per cent of the floor area.

(c) Where it is impracticable to operate such a system of natural ventilation, a mechanical system of ventilation shall be provided. This system may be combined with the

heating system or may be an entirely separate installation.

(d) Positive provision shall be made for either the inlet of 1 cu. ft. of air per minute from out-of-doors for each square foot of floor area, or for removing the same amount and discharging it to the outside.

(e) For the purpose of the regulations, positive means of handling air shall be understood to mean a power-driven fan of sufficient capacity to move the required volume of air.

(f) Where positive systems of exhausting air are used, the exhaust openings shall be not more than 24 in. above the floor and shall be not more than 50 ft. apart.

(g) Garages having a capacity of not less than 4 or not more than 35 cars within the scope of these regulations may consider air exhaust stacks as positive, provided they have not less than 15 sq. ft. of steam heating surface for each square foot of duct area, and not less than one square foot of free area through both heating coil and duct for each 350 sq. ft. of floor area. Such an exhaust duct shall discharge above the roof and extend in any case to a height of not less than 15 ft. above the heating coils.

(h) Where mechanical systems of introducing outside air are used, and where air is recirculated the air shall be delivered horizontally and in sufficient volume and with sufficient velocity to secure distribution to all parts of the building. The height of the air inlet opening shall be such that the air will be discharged above the top of the vehicles.

(i) All duct openings, either supply or exhaust, shall be covered with $\frac{1}{4}$ -in. mesh screen.

(j) The passing of air ducts through fire walls shall be avoided wherever possible. Ducts shall be installed in accordance with the regulations for the installation of blower and exhaust systems.

Section 17. Repair Shops

(a) Repair shops shall be ventilated as required for garage storage sections, except that mechanical means shall be provided for both

the inlet and exhaust of 1 cu. ft. of air per minute per square foot of floor area.

(b) In connection with engine testing it is recommended that the engine discharge direct to outdoors through a straight duct or pipe of incombustible material, and of suitable size, installed as an extension of the exhaust pipe or muffler, in which case the mechanical system for inlet or mechanical system for exhaust may be omitted.

Section 18. Fuel Burning Appliances

Steam generators for tire vulcanizing, for oil and grease removal and for purposes other than space heating water heaters, and other fuel burning appliances such as forges shall not be installed within bus operating section or within carpenter or paint shop.

Section 19. Inspection and Repair Pits and Trestles

Elevated trestles or hoists are preferable for this service. If pits are used, they shall be continuously ventilated by a system independent of the main garage ventilating system. Such pits shall be cleaned at least daily and no accumulation of oil and grease permitted. Permanent illumination shall be provided.

SPOT NEWS

The death is reported of Edward Ehlers, who operated a sheet metal works at 1973 East Stark Street, Portland, Oregon.

F. B. Cade has sold his interest in the sheet metal works of Popple & Knowles, 1311 Weller Street, Seattle, Washington, to O. R. Wilhelm, who now owns a controlling interest.

The Monitor Heating Co., 502 W. Lake Street, Minneapolis, Minnesota, has the furnace heating contract for Pearson Brothers' bungalow at 3901 W. 26th Street.

The Waterman-Waterbury Co., 1121 Jackson Street, Minneapolis, Minnesota, has the warm air heating contract for a bungalow at Robbinsdale, Minnesota.

The National Heating & Ventilating Co., 403 Essex Building, Minneapolis, Minnesota, has the furnace

heating contract for Fourth Church of Christ Scientist building at 3100 Park Avenue.

Gulick Johnson, proprietor of the Johnson Sheet Metal Shop, Albert Lea, Minnesota, is clearing the site for a one-story 25x82-foot shop building at Washington and Williams Streets.

R. M. Danielson is remodeling his tin shop at 402 Minnesota Street, Bemidji, Minnesota, and will add a 15x25-foot garage.

F. P. Lucas, Parker's Prairie, Minnesota, has the furnace and ventilating contract for a rural school at Wadena, Minnesota.

The Iowa City Sheet Metal Works, Iowa City, Iowa, has the sheet metal contract for the top addition to the Jefferson Hotel at that point.

Linehan & Molo have the contract for ventilating system for Senior High School in Dubuque, Iowa.

The L. E. Glaze Furnace & Sheet Metal Construction Co., 811 Commercial Street, Waterloo, Iowa, has the warm air heating contract for the residence at 907 Kingsley Avenue.

The Waterloo Metal & Manufacturing Co., Commercial and Thompson Streets, Waterloo, Iowa, has the warm air heating contract, and H. B. Fereday Sheet Metal Works the sheet metal contract for residence at 1024 Grant Street.

The F. L. Haaker Sheet Metal & Heating Co., 809 East 4th Street, Waterloo, Iowa, has the warm air heating contract for residence at 1724 Mulberry Street.

The Stegman & Trainer Sheet Metal & Furnace Works, 710 Jefferson Street, Waterloo, Iowa, has the warm air heating contract for residence at 417 Oak Lawn Avenue.

The L. E. Glaze Furnace & Sheet Metal Construction Co., 811 Commercial Street, Waterloo, Iowa, has the warm air heating contract for residence at 1076 Independence Avenue.

The Guilford Cornice Co., 1234 Howard Street, San Francisco, California, has the contract for sheet metal work on residence at north-

east corner of Broaderick and Valjejo Streets.

The Vosmer Sheet Metal Works, Monterey, California, has the sheet metal contract on convent building of Sisters of St. Francis.

Morrison & Co., 74 Duboce Avenue, San Francisco, California, has the contract for the sheet metal work for Income Properties of California office building in Oakland, California.

The Los Angeles Fireproof Door Co., fireproof doors and sheet metal work, 805 East 31st Street, Los Angeles, California, has engaged in business under the management of Jacob Missler.

The Standard Roofing & Material Co., 24th and Broadway, Norman, Oklahoma, has been awarded the contract for roofing and sheet metal work for the State Library building.

Clarence W. Livingston, 12 West Madison Street, Baltimore, Maryland, has the sheet metal contract for \$100,000 improvement to the City Hall.

E. M. Wiegmann & Co., 1908 Benton Street, St. Louis, Missouri, is in the market for carloads of short lengths and job lots of 18 and 20-gauge of galvanized sheets.

National Heating Service Enters Warm Air Heating Field As Consulting Engineers

L. M. Burt, until recently connected with the Quaker Manufacturing Company, Chicago, has opened an office at 215 North Michigan Avenue, Chicago, under the name of National Heating Service.

The new company will act in the capacity of consulting engineers on gravity and forced warm air heating installations. The service will consist in furnishing of blue prints of installations, designed by them, material specifications, cost estimates, supervision and inspection of installations where it is desired, and the giving of advice in general on trouble jobs. The company is in a position to serve the architects, building and heating contractors, manufacturers, as well as the home owner, giving each the benefit of

Mr. Burt's broad experience and impartial judgment at a very moderate cost.

Mr. Burt is well qualified to undertake a service of this kind. He has had fifteen years of experience in designing warm air furnace installations, locating and overcoming difficulties in circulating systems, and is fully convinced of a definite need for a service of this kind.

As president of the Greater Chicago Warm Air Heating Associa-



L. M. Burt

tion, Mr. Burt has had an active part in formulating Chicago's present warm air heating ordinance, and as chairman of the Advisory Committee to the Building Commissioner of Chicago he has had an active part in getting the correct interpretation of the ordinance and in getting it into operation. He is also a cooperative member of the National Warm Air Heating Association.

With this background the new company will be able to provide adequate, prompt service to the heating industry on a national scale, as well as to render personal service in the greater Chicago area. His telephone number is Central 8224.

Gray & Dudley Co., Develops New Wood Burning Furnace

The Gray & Dudley Co., Nashville, Tennessee, have designed the No. 25 Washington furnace for burning wood only. Cold air is drawn into the furnace from all

corners of the floor through the bottom. This air is heated as it travels across the interior heating unit, and is forced out at the top through the cast iron open drill work. The bottom of the furnace is open so that all of the air that is taken in for circulation comes in at the extreme bottom of the furnace and has a longer travel across the heated portion of the inner heating unit.

The No. 25 Washington furnace is equipped with a patented foot warmer, patent No. 1647828, shown in the illustration.

The right end is fitted with a large outside double door, and the heating unit has cast iron front feed door and ash door with through reg-



New Wood Burning Furnace

ister draft. The interior heating unit has an all cast iron bottom, and is cast iron lined 12 inches above the bottom. The interior heating unit also has a cast iron top.

The cabinet of the No. 25 Washington Furnace as illustrated above is of a particularly attractive design. The casing is smooth and especially handsome in appearance, and it is readily cleaned by wiping off occasionally with a dry rag.

The water pan of the furnace is located in the back panel. It is made of cast iron, enameled inside and out.

The No. 25 Washington furnace is equipped with 7 inch pipe collar, is 35½ inches in height, and the floor space required is 32½ inches by 21½ inches. The crated weight is 300 pounds."

Insulation Against Heat Loss From Wheat Straw

A bulletin issued by Louis N. Crill, Secretary of Agriculture of South Dakota, deplors the prevailing habit of burning the wheat straw in that state, and says that chemistry, the handmaid of agriculture, has been sitting up nights working, as it were, while the farmers were soundly sleeping.

A highly technical test was made by the Armour Institute of Technology of Chicago, the purpose of the test being to determine the comparative values of various vegetable fibres that have come into commercial use in recent years as a base for insulating material and lumber substitute boards.

In the report issued September 16, 1927, by the mechanical engineer of the Armour Institute of Technology, the insulating boards, manufactured from wheat straw, showed 7.78 on the flat place test and 6.0 on the hot box test, thus demonstrating conclusively that as the basic material for insulating boards wheat straw is superior.

The merit of wheat straw as an insulating material is in the cellular formation of its long, tough fibers, which even in their natural state are almost indestructible under the corroding influence of the elements.

The process reduces these long, cellular fibers into a pulp, and when formed into boards they become an ideal insulating material, because they are virtually impervious to heat and cold and have a strength that is adequate for all purposes.

It will be of much interest to South Dakota wheat farmers, says Mr. Crill, to know that there is no longer any question as to the successful manufacture of lumber substitute from the wheat straw.

Recently a big mill—the most complete of its kind in the world—has been completed at St. Joseph, Missouri, for the purpose of utilizing the straw from the winter wheat in that section. The mill has a capacity of 100,000 square board feet per day. It recently shipped a carload of this board to Holland.

Tom Pearson Associates with Western Steel Products Company

Thomas W. Pearson (familiarily known in the warm air heating industry as Baron Von Dinklespiel) has associated himself with the Western Steel Products Company, Duluth, Minnesota, in the capacity of special representative.

Mr. Pearson, who was formerly with the Thomas and Armstrong



Thomas W. Pearson

Company, has a wide acquaintance in the warm air heating industry. He has taken an active part in the betterment movements in the industry, showing incontrovertibly that he has the future welfare of warm air heating thoroughly at heart.

In his new connection Mr. Pearson will continue to serve the best interests of the warm air heating industry, as he will be in the furnace department of the Western Steel Products Company.

A. Stewart Shows His Method of Figuring Profit

AMERICAN ARTISAN:

A. Stewart, President Haftenkamp Heating Company, has a word to say about the method of figuring the sheet metal job employed by the men at the recent National Association of Sheet Metal Contractors which appeared in the

June 30th issue of AMERICAN ARTISAN.

In the June 30th issue of AMERICAN ARTISAN, I noticed the official estimate prepared by Mr. Feiten on a sheet metal job.

I would like to ask if this is an approved method of figuring mark up. It seems to me that this might be just a little misleading, due to the fact that it does not give the contractor a net 10 per cent on his volume of business.

The method I have always used and always found practical and simple is this: Let 100 per cent equal the selling price, let 10 per cent equal the profit. Then the cost would be the difference between 100 per cent and 10 per cent or 90 per cent. We would then have, using the figures given in the official estimate, 90 per cent equals 179.32. In order to find 100 per cent we would first have to find 1 per cent. One per cent equals 1.9924. 100 per cent equals 199.24 or the selling price. This would give the contractor 10 per cent of the selling price and not 10 per cent of the cost.

I have had a great many arguments on this subject and would appreciate a word from you.

A. Stewart

34th and Prospect
Kansas City.

Collection Methods That Get the Money Without Losing Friends

Richard M. Judd, President of the Premier Warm Air Heater Company, Dowagiac, Michigan, writing in the June issue of the *Premier Pictorial*, has some very potent remarks to make on the necessity for using tact and diplomacy in the collection of accounts that have slipped in arrears or have ceased making the monthly payments. What Mr. Judd has to say can be read with profit by every warm air furnace installer and sheet metal contractor. He writes as follows:

"Many dealers make use of the telephone in collecting such accounts. In the hands of a man who

has tact, the telephone is a deadly method. The man who lacks tact will find it equally deadly, with himself the victim.

"Tact has been well illustrated in the story of the man servant who walked into the bathroom and found the lady of the house in the tub. Turning his face, he backed out and said: 'I beg your pardon, sir.' That's tact.

Phone Calls Get the Money

"A friendly call on the phone to the man who owes you money, stating simply and in a straight forward manner that you are up against it and need a little money, will bring surprising results. Particularly so if you throw in a little spice and say something like this: 'You know, old man, if you are ever up against it and need a little help, just give me a ring and I'll do my best.'

"The next step is the personal call. This should be made by the proprietor himself in all cases where the bill is of any size. Sending the office girl makes it easy for the debtor to postpone action and we are now at the place where action is needed.

"The first inquiry should be to find out if the amount of your bill is correct. If there is any argument on that score get it settled before asking for the money.

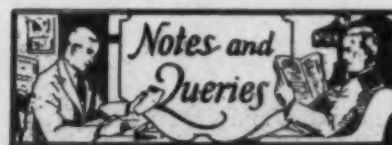
"Then ascertain if the work has been done in a satisfactory manner and if your customer is satisfied. If he is not, and either the amount of the bill or the quality of the work is unsatisfactory, then you have a quick decision to make. If your men have slipped and the work is not right, fix it right, fix it right then and there. Don't delay, do it now. Show your customer that you have a real desire to render real service and that you do appreciate knowing about poor service and complaints.

"Practically all of the people who stop making their regular payments on furnaces do so because the dealer has been careless about completing the job. When completed, they pay up.

"When there is a dispute over a

bill or the work which has been done, it should be evident that diplomatic handling of your customer is required. That does not mean either that the customer is always right.

"If you see that you will have to make a concession, make it. Don't argue about it for an hour and then give in. Be 'Big Hearted Otis' when you give something away and get value received. If you fight for an hour, a week, a month or a year and then give in, you have lost a friend and a customer. In this day and age of keen competition you can't afford to do either."



"Quaker" Furnace

From E. G. Knodle, 168 South Clifford Street, Elgin, Illinois.

Can you tell me who manufactures the "Quaker" furnace?

Ans. — Quaker Manufacturing Company, 215 North Michigan Avenue, Chicago.

"Champion" Auxiliary Boilers.

From Industrial Roofing Contractors, Mattoon, Illinois.

Can you tell us if the "Champion" Auxiliary Boilers are still being made, and by whom?

Ans. — Melbye Brothers Company, 1208 Webster Avenue, Chicago, Illinois.

Electric Furnace Man.

From C. L. Featherstone Furnace Company, 520 Second Avenue, Spokane, Washington.

Can you tell us who makes the Electric Furnace Man to be used to convey coal to the warm air furnace?

Ans.—Domestic Stoker Company, 7 Gay Street, New York City.

Repairs for Furnaces Made by Brand Stove Company.

From H. M. Tovar Company, 411 Pine Street, Port Huron, Michigan.

Can you tell us where we can get repairs for furnaces made by the Brand Stove Company, Milwaukee?

Ans.—Northwestern Stove Repair Company, 654 West Roosevelt Road, Chicago.

Steel Tonnage Up But Prices Cause Worry

Third Quarter Starts With Rush—Pig Iron Lower at Chicago—Sheet Mills Active—Non-ferrous Metals Steady

STEEL is getting away to one of the best third-quarter starts in history. With the July 4 holiday past, production has rebounded to the level that made June the second highest on record, and if the increase in the unfilled tonnage of the United States Steel Corporation is a criterion, the inflow of business is adequate to sustain it.

Pipe Mills Rarely So Well Booked

Spectacular purchasing of pipe, the heavy private arrangements for semi-finished material at the turn of the quarter, and the seasonally large demands from the automotive, farm implement and building industries have more than neutralized the dearth of contracts for heavy steel. In the past fortnight pipe mills have booked over 225,000 tons and inquiry has not been exhausted.

In price, however, the situation is less satisfactory to producers. Consumers of steel bars, plates and shapes are increasingly successful in opposing the \$1 advance and the 1.85 cent, Pittsburgh, price is being extended. Weakness in wire products has been officially recognized by a universal reduction of \$2 per ton. Some makers of sheets and strip are less disposed to meet recent low prices, but this strengthening comes after much third quarter business has been closed.

Unfilled Tonnage Stages Sharp Comeback

Statistical support of the present strong situation in steel is ample. When the unfilled tonnage of the Steel corporation increased 220,187 tons as of June 30, to a total of 3,637,009 tons, it reversed a current that can be gaged from a decline so great as 455,311 tons as of May 31.

Preholiday Operating Rates Resumed

Following the holiday lull, Steel corporation subsidiaries are operating at 75 per cent, paralleling the late June rate, while independents

average 68 per cent and all producers about 71 per cent. The Chicago district is at 78 per cent this week and Buffalo at 75. Due largely to the accumulation of sheet orders when mills closed last week, the Mahoning valley is at 89 per cent this week; 114 out of 127 independent sheet mills are active, the largest number so far this year.

Pig Iron

Interest in the Pittsburgh pig iron market here centers largely on the recent purchase of a portion of the National Malleable and Steel Castings Company's requirements of basic for its Sharon, Pennsylvania, plant. The company closed for 1,000 tons, the price delivered being \$16.50. It is understood the freight rate was 45 cents from a shipping point in the valley. The rate from Youngstown to Sharon is 76 cents, and though this might indicate a Youngstown equivalent of \$15.74, it is significant that Youngstown producers did not meet that price. Demand for pig iron generally is dull. Small lots of bessemer and malleable are selling at \$17, valley.

Northern pig iron has been reduced 50 cents by leading Chicago furnace interests. The price now is \$17.50, base, Chicago furnace. This is said to be the lowest base price for the Chicago district iron since 1915. The reduction comes as a surprise and is understood to be due in part to competitive conditions resulting from shipments by boat from eastern lake furnaces.

Birmingham furnace interests report sales slow, deliveries active, and production of foundry iron unchanged. Two blast furnaces are being rebuilt and two others are being relined.

Copper

The market remains unusually steady and firm, with not much new business but with shipments con-

tinuing large. June statistics are expected to show a continued tight position in supply.

Tin

Tin became steady after the break about a week ago and since then has been selling slightly over 46 cents most every day. Buying of the past week also has included both dealers and users for futures.

Lead

Buying of this metal the past week has been light and mostly for early shipment. The London price has gone down and that fact has helped to discourage buyers here. On the other hand, producers, realizing that users are not well covered, have been better able to maintain a steady level. Prices are lower.

Zinc

Prime western has held steady at 6.20 cents for July shipment for about two weeks, and futures at 6.25 cents, East St. Louis. In the past few days the market has been quiet at the moderate sort of buying, mostly for early shipment. The statistical showing for June was a factor for strength with record shipment of metal reported for the first half of this year. Stocks were cut during the month.

Solder

Chicago warehouse prices on solder are as follows: Warranted 50-50, \$29.75; Commercial 45-55, \$26.75; plumbers', \$23.75, all per 100 pounds.

Old Metals

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$15.75 to \$16.25; old iron axles, \$23.50 to \$24.00; steel springs, \$15.50 to \$16.00; No. 1 wrought iron, \$11.00 to \$11.50; No. 1 cast, \$12.75 to \$13.25; all per net tons. Prices on non-ferrous metals are quoted as follows, per pound: Light copper, 10½ cents; zinc, 3½ cents; cast aluminum, 12¼ cents.



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Undenied Progress




DOUBLE
LOCKSEAM

THE FINEST elbow ever made. Double lock seamed on the outside—added strength where it is most needed, an exclusive Barnes feature. Twice the usual number of crimps—less distortion of metal—smoother curve—angle more accurate—longer taper—easier fit. Accurate as to size and full weight guaranteed. Every elbow plainly trade-marked, with size, gauge and angle.

*Use Barnes Products to Build Better Business. Our
Booklet Tells How. Write for Free Copy*

BARNES METAL PRODUCTS COMPANY, 1531 Kingsbury Street, Chicago, Illinois

MANUFACTURERS OF CONDUCTOR PIPE, ELBOWS, EAVES TROUGH AND FITTINGS. ALL SIZES, ALL METALS

The Plant Behind Barnes Progress



THIS is the home of Barnes Products, in which is housed the specially constructed equipment that insures a continuous uniformity of Barnes quality.

The unusual merit that characterizes Barnes Products is the result of a dominating spirit of "UNDENIED PROGRESS." Because of this unquestioned leadership, "As Good as Barnes" is a common expression in the trade.

To serve you successfully and better than you were ever served before, is our constant aim and ambition. On this basis of a square deal for all, we invite your business.

Use Barnes Products to Build Better Business. Our Booklet Tells How. Write for a Free Copy

BARNES METAL PRODUCTS COMPANY, 1531 Kingsbury St., Chicago, Illinois
MANUFACTURERS OF CONDUCTOR PIPE, ELBOWS, EAVES TROUGH AND FITTINGS. ALL SIZES, ALL METALS

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN is the only publication containing Western Metal, Furnace Supply and Hardware prices corrected weekly

METALS

FIG IRON

Chicago Fdy., No. 2	\$17.50
Southern Fdy. No. 2	21 51
Lake Superior Charcoal	27 04
Malleable	17.50

FIRST QUALITY BRIGHT TIN PLATES

IC 20x28 113 sheets	\$25 10
IX 20x28 113 sheets	29 60
IXX 20x28 56 sheets	16 20
IXXX 20x28 17 55	
IXXXX 20x28 18 95	

TERNE PLATES

IC 20x28, 40-lb. 113 sheets	\$25 00
IX 20x28, 40-lb. 113 sheets	27 75
IC 20x28, 35-lb. 113 sheets	21 15
IX 20x28, 35-lb. 113 sheets	23 80
IC 20x28, 30-lb. 113 sheets	19 55
IV 20x28, 30-lb. 113 sheets	22 05
IC 20x28, 15-lb. 113 sheets	18 95

"ARMCO" INGOT IRON PLATES

No. 8 ga. up to and including 1/4 in.—100 lbs.	\$4 55
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COKE PLATES

Cokes, 80 lbs., base, 20x28	\$12 00
Cokes, 90 lbs., base, 20x28	13 80
Cokes, 100 lbs., base, 20x28	14 00
Cokes, 107 lbs., base, IC	
20x28	14 30
Cokes, 125 lbs., base, IX	
20x28	16 40
Cokes, 155 lbs., base, 56 sheets	9 20
Cokes, 175 lbs., base, 56 sheets	10 05
Cokes, 195 lbs., base, 56 sheets	10 30

BLUE ANNEALED SHEETS

Base 10 ga.—per 100 lbs.	\$2 25
"Armco" 10 ga.—per 100 lbs.	4 50

ONE PASS COIL ROLLED BLACK

No. 18-20—per 100 lbs.	\$2 75
No. 22—per 100 lbs.	3 50
No. 24—per 100 lbs.	3 80
No. 26—per 100 lbs.	4 05
No. 27—per 100 lbs.	4 10
No. 28—per 100 lbs.	4 20
No. 29—per 100 lbs.	4 25
No. 30—per 100 lbs.	4 45

"ARMCO" GALVANIZED

"Armco" 24—per 100 lbs.	\$8 15
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GALVANIZED

No. 16—per 100 lbs.	\$4 30
No. 18—per 100 lbs.	4 45
No. 20—per 100 lbs.	4 60
No. 22—per 100 lbs.	4 85
No. 24—per 100 lbs.	5 05
No. 26—per 100 lbs.	5 25
No. 27—per 100 lbs.	5 30
No. 28—per 100 lbs.	5 30
No. 30—per 100 lbs.	5 70

BAR SOLDER

Warranted 50-50—per 100 lbs.	\$29 75
Commercial 45-55—per 100 lbs.	26 75
Plumbers—per 100 lbs.	23 75

ZINC

In Slabs	\$ 8 50
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SHEET ZINC

Cask Lots (600 lbs.)	\$10 75
Sheet Lots	11 75

BRASS

Sheets, Chicago Base	19 1/4 c
Mill base	18 1/4 c
Tubing, brass base	27 1/4 c
Wire, base	18 1/4 c
Rods, base	16 1/4 c

COPPER

Sheets, Chicago base	24 1/4 c
Mill base	23 1/4 c
Tubing, seamless base	26 1/4 c
Wire, No. 9, B & S Ga.	19 1/4 c
Wire, No. 10, B & S Ga.	19 1/4 c
Wire, No. 11, B & S Ga.	20 1/4 c
Wire, No. 12, B & S Ga. and heavier	19c

LEAD

American Pig	\$7 30
Bar	8 30

TIN

Pig Tin—per 100 lbs.	\$55 00
Bar Tin—per 100 lbs.	56 00

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS

Paper up to 1/16—6c per lb.	
Roll board 3/32 to 1/4—6c per lb.	
Corrugated Paper (350 sq. ft. to roll)—\$6 00 per roll	

BRUSHES

Furnace Pipe Cleaning Bristle, with handle, each	\$0 75
Pipe Cleaning Steel only, each	1 25

BURRS

Copper Burrs only	40-2 1/4 c
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CEMENT, FURNACE

American Seal, 5-lb. cans, net	\$ 45
American Seal, 10-lb. cans, net	85
American Seal, 25-lb. cans, net	2 25
Pecora—per 100 lbs.	7 50

CHIMNEY TOPS

Adams' Revolving	Wt. Doz.	Price Doz.
4 in.	21 lbs.	\$11 00
6 in.	24 lbs.	11 50
7 in.	30 lbs.	13 50
8 in.	32 lbs.	15 00
9 in.	31 lbs.	16 50
10 in.	34 lbs.	18 00
12 in.	36 lbs.	22 00
14 in.	110 lbs.	36 00

CLINKER TONGS

Each	\$1 50
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CLIPS

Damper No-Rivet Steel, with tail pieces, per gross	\$9 50
Rivet Steel, with tail pieces, per gross	7 50
Tail pieces, per gross	1 40

COPPERS—Soldering

Painted Roofing 3 lb. and heavier—per lb.	40c
2 1/2 lb.—per lb.	45c
2 lb.—per lb.	48c
1 1/2 lb.—per lb.	55c
1 lb.—per lb.	60c

CORNICE BRAKES

Chicago Steel Bending Nos. 1 to 6B—Net	
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CUT-OFFS

Gal., plain, round or cor. rd. 26 gauge	20c
28 gauge	25c

DAMPERS

"Yankee" Hot Air 7 inch, each 25c, doz.	\$1 50
8 inch, each 25c, doz.	2 20
9 inch, each 25c, doz.	3 00
10 inch, each 25c, doz.	3 80

Smoke Pipe 7 inch, doz.	\$1 00
8 inch, doz.	1 20
9 inch, doz.	1 40
10 inch, doz.	1 60
12 inch, doz.	2 00

ADAMS No. 1 CHECK

Check and Collar Complete 8 inch, each	2 00
9 inch, each	2 25
End Check Only 8 inch, each	1 60
9 inch, each	1 85
Collar Only 8 inch, each	50
9 inch, each	55

No. 2 CHECK

8 inch, each	1 00
9 inch, each	1 20
10% Disc. on Adams No. 1 and No. 2 Check	

Diamond Smoke Pipe 7 inch, doz.	\$ 2 00
8 inch, doz.	2 20
9 inch, doz.	2 40
10 inch, doz.	2 60

Adams' Sheet Metal

7 inch, doz.	\$ 1 00
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	2 80
12 inch, doz.	3 50
14 inch, doz.	5 00

EAVER TROUGH

Galv. Crimpedge, crated 75 & 5c Zinc, "Barnes"	60c
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ELBOWS

Conductor Pipe Galv. plain or corrugated, round flat Crimp.	
25 Gauge	60c
26 Gauge	45c
24 Gauge	15c

Galv. & Terne Steel

Plain Rd. and Rd. Corr.: 28 Ga.	60c
26 Ga.	45c
24 Ga.	15c

Squares Corrugated

No. 28 Gauge	50c
26 Gauge	35c

Portico Elbows

Standard Gauge Conductor Pipe, plain or corrugated.	
Not nested	70 & 5c
Nested Solid	70 & 5c

Sq. Corr. A. & B. & Octagon

28 Ga.	50c
26 Ga.	35c

Portico

1", 1 1/4", 1 1/2"	45c
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Copper

16 oz., all designs	50c
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Zinc

All styles	60c
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ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue "Milcor" No. 28 Gauge, Doz.	
6-inch	\$1 05
6-inch	1 20
7-inch	1 75

Special Corrugated

6-inch	\$1 00
7-inch	1 60

Adjustable—Uniform Blue

"Milcor" No. 28 Gauge, Uniform Blue.	
6-inch	\$1 05
6-inch	1 75
7-inch	2 10

WOOD FACES—50% off list.

FENCE

726-6-12 1/4 (100 rods)	\$28 68
1948-6-14 1/4 (100 rods)	42 62

FILES AND RASPS

Heller's (American)	50-10%
American	60-10%
Arcade	50%
Black Diamond	50%
Eagle	50%
Great Western	50%
Kearney & Foot	50%
McClellan	50%
Nicholson	50%
Simonds	60%

FIRE POTS

Geo. W. Diener Mfg. Co.	Pa.
No. 62 Gasoline Torch, 1 qt.	\$ 5 12
No. 6260, Kerosene, or Gasoline Torch, 1 qt.	6 50
No. 10 Tinner's Furn. Square tank, 1 gal.	11 20
No. 15 Tinner's Furn. Round tank, 1 gal.	10 70
No. 21 Gas Soldering Furnace	8 60
No. 110 Automatic Gas Soldering Furnace	10 50

Quick Meal Stove Co.

Vesuvius, F. O. B. St. Louis 30% (Extra Disc. for large quantities.)	
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GALVANIZED WARE

Pails (Galv. after made), 10-qt.	\$2 00
Tubs (Galv. after made), No. 1	5 75
No. 2	6 50

GLASS

Single Strength, A, 52-in. brackets	88%
Single Strength, 9, 34 to 40-in. brackets	89-5%
Single Strength, A, all other brackets	88%
Double Strength, A, all sizes	88%

HANGERS

Conductor Pipe Milcor Perfection Wire	25c
Milcor Triplex Wire	10c

Eaves Trough

Milcor Steel (galv. after forming) List	plus 12 1/4%
Milcor Self-Seal E. T. Wire, List	plus 50%

HOOBS

Conductor "Direct Drive" Wrought Iron for wood or brick	15c
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HUMIDIFIER

"Front-Rank," Automatic In single lots	50%
In lots of 10 or more	50-5%
In lots of 25 or more	50-10%
Vapor pans, etc., each	50%

LIFTERS

Stove Cover Coppered	per gro. \$4 00
Alaska	per gro. 4 75

MALLETS

Tinner's Hickory	per doz. \$2 25
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MITRES

Galvanized steel mitres, 28 Ga.	70
26 Ga.	60-30

NAILS

Cut Steel	\$4 25
Cut Iron	4 25

Wire

Common	\$3 10
Cement Coated	3 10

(Continued on Page 74)

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NETTING, POULTRY

Galvanized before weav-
ing60%

Galvanized after weaving.50-10%

RIDGE ROLL

Galv., Plain Ridge Roll,
b'did75-10-5%

Galv., Plain Ridge Roll
crated75-10%

Globe Finials for Ridge Roll.50%

PASTE

Asbestos Dry Paste:

200-lb. Barrel\$16 00

100-lb. barrel8 75

35-lb. pail3 50

10-lb. bag1 10

5-lb. bag60

2 1/2-lb. cartons35

SCREWS

Sheet Metal

7. 1/2x1/2, per gross.....\$0 52

No. 10, 1/2x3/16, per gross 88

No. 14, 1/2x1/2, per gross.. 88

FOKERS, FURNACE

Each\$0 75

FOKERS, STOVE

Nickel Plated, coil handles,
per doz.1 10

Wrt Steel, str't or bent,
per doz.\$0 75

SHEARS, TINNERS'
& MACHINISTS'

Viking\$22 00

Lennox Throatless

No. 1835%

Shear blades10%

(f. o. b. Marshalltown, Iowa)

SHIELDS, REGISTER

No. 1 "Gem" floor.....\$12 00 doz.

No. 2 "Gem" wall.... 6 00 doz.

SHOES

Galv. 28 Gauge, Plain or cor-
rugated round flat crimp.....60%

26 gauge round flat crimp....45%

24 gauge round flat crimp....35%

SNIPS, TINNERS

Clover Leaf40 & 10%

National40 & 10%

Star50%

MilcorNet

SQUARES

Steel and IronNet

(Add for bluing \$3 per doz. net)

MitreNet

TryNet

Try and BevelNet

Try and MitreNet

For'sper doz. \$6 00

Winterbottom's10%

FULLERS

Furnace Tackle....per doz. \$0 85

Furnace Screw (enameled)
.....per doz. 75

PUTTY

Commercial Putty, 100-lb.
Kits\$3 50

QUADRAENTS

Malleable Iron Damper.....10%

REDUCERS—Oval Stove Pipe

7-8, 28-gauge, 1 doz. in
carton\$3 00

PER DOZ.

REGISTERS AND BORDERS

Baseboard, Floor and Wall.

Cast Iron30%

Steel and Semi-Steel.....40%

Baseboard, 1 piece.....40-30%

Baseboard, 2 piece.....40%

Wall40%

Adjustable Ceiling Ventilators
.....40%

Register Faces—Cast and Steel

Japanned, Bronzed and
Plated, 4x6 to 14x14.....40%

Large Register Faces—Cast,
14x14 to 28x42.....60%

Large Register Faces—Steel,
14x14 to 28x42.....65%

VENTILATING REGISTER

Per gross\$ 00

Small, per pair20

Large, per pair50

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Per gross\$ 00

Small, per pair20

Large, per pair50

SHIELDS, REGISTER

No. 1 "Gem" floor.....\$12 00 doz.

No. 2 "Gem" wall.... 6 00 doz.

SHOES

Galv. 28 Gauge, Plain or cor-
rugated round flat crimp.....60%

26 gauge round flat crimp....45%

24 gauge round flat crimp....35%

SNIPS, TINNERS

Clover Leaf40 & 10%

National40 & 10%

Star50%

MilcorNet

SQUARES

Steel and IronNet

(Add for bluing \$3 per doz. net)

MitreNet

TryNet

Try and BevelNet

Try and MitreNet

For'sper doz. \$6 00

Winterbottom's10%

FULLERS

Furnace Tackle....per doz. \$0 85

Furnace Screw (enameled)
.....per doz. 75

PUTTY

Commercial Putty, 100-lb.
Kits\$3 50

QUADRAENTS

Malleable Iron Damper.....10%

REDUCERS—Oval Stove Pipe

7-8, 28-gauge, 1 doz. in
carton\$3 00

PER DOZ.

REGISTERS AND BORDERS

Baseboard, Floor and Wall.

Cast Iron30%

Steel and Semi-Steel.....40%

Baseboard, 1 piece.....40-30%

Baseboard, 2 piece.....40%

Wall40%

Adjustable Ceiling Ventilators
.....40%

Register Faces—Cast and Steel

Japanned, Bronzed and
Plated, 4x6 to 14x14.....40%

Large Register Faces—Cast,
14x14 to 28x42.....60%

Large Register Faces—Steel,
14x14 to 28x42.....65%

VENTILATING REGISTER

Per gross\$ 00

Small, per pair20

Large, per pair50

SHIELDS, REGISTER

No. 1 "Gem" floor.....\$12 00 doz.

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14x14 to 28x42.....60%

Large Register Faces—Steel,
14x14 to 28x42.....65%

VENTILATING REGISTER

Per gross\$ 00

Small, per pair20

Large, per pair50

SHIELDS, REGISTER

No. 1 "Gem" floor.....\$12 00 doz.

No. 2 "Gem" wall.... 6 00 doz.

SHOES

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VENTILATING REGISTER

Per gross\$ 00

Small, per pair20

Large, per pair50

SHIELDS, REGISTER

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No. 2 "Gem" wall.... 6 00 doz.

SHOES

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MilcorNet

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VENTILATING REGISTER

Per gross\$ 00

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Large, per pair50

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Register Faces—Cast and Steel

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Your skill, and the principles and services back of this sign, make a combination that is sure to lead to success—more business, bigger profits and the good will of many satisfied customers.

ARMCO Distributors' Ass'n of America
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PERFORATED METALS



All Sizes and Shapes of Holes
In Steel, Zinc, Brass, Copper, Tinplate, etc.
For All Screening, Ventilating and Draining
EVERYTHING IN PERFORATING METAL

THE HARRINGTON & KING PERFORATING CO.

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NEW YORK OFFICE: 114 LIBERTY ST.

The NEW IMPROVED "STANDARD"

Rotable Ventilator

Now made of Armco Iron

This favorite cone-shaped ventilator is now improved in several important points.

The weight of the ventilator body is now carried on a concave thrust bearing nested in the apex of the conical body. This bearing turns upon the pivot point of the stationary center spindle.

The bronze Guide Bushings are now made of non-corrosive bronze which minimizes friction and any tendency to screech when body is rotating.

There are other new features. Write today for new catalog and price list.



Patents pending

STANDARD VENTILATOR CO., Lewisburg, Pa.

The W. J. BURTON CO.

Detroit, Michigan

Forty-Four Years
Serving the
Sheet Metal Contractor

with

**SHEET METAL PRODUCTS
FOR BUILDINGS**

That Satisfied Smile

when you use

**Shur-Grip
Solder
Iron
Handles**



They Screw On
And STAY ON



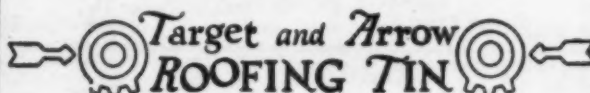
Keeps Solder Iron Cool and Rigid
Can't Split—Can't Come Off
Insures Safety with Economy

Patented April 24, 1923
No. 1,453,082

Let Us Send You a Sample Shur-Grip

Hyro Manufacturing Co., Inc.
204 Varick St. NEW YORK

HANDMADE ROOFING TIN
like your grandfather used



is hand made by an old Welsh process. It is differently dipped—soaked for 35 minutes in successive pots of boiling oil and molten metal.

A BOOKLET WHICH TELLS ALL
ABOUT IT—SENT ON REQUEST

Know all about this famous
roofing tin that makes
fifty year roofs

It costs slightly more than the best machine made plate—always specified where the best is desired.

N. & G. TAYLOR COMPANY
Broad and Arch Streets Philadelphia
Headquarters for Good Roofing Tin Since 1810

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Copper & Brass Research Association, New York
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Parker-Kalon Corp., New York, N. Y.
Stover Mfg. & Engine Co., Freeport, Ill.
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National Regular Co., Chicago, Ill.
- Dies—Punch & Press.**
La Salle Machine Works, Chicago, Ill.
- Diffuser—Air Duct.**
Aeolus-Dickinson Co., Chicago, Ill.
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- Drive Screws—Hardened Metallic.**
Parker-Kalon Corp., 354 West 13th St., New York
- Eaves Trough.**
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- Berger Bros. Co., Philadelphia, Pa.**
Berger Co., L. D., Philadelphia, Pa.
Burton Co., The W. J., Detroit, Mich.
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
New Jersey Zinc Sales Co., The New York, N. Y.
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Lupton's Sons Co., David, Philadelphia, Pa.
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American Wood Register Co., Plymouth, Ind.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
- Fences.**
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- Fittings—Conductor.**
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Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
- Flanges.**
Chicago Metal Mfg. Co., Chicago, Ill.
- Fittings—Steel Pipe.**
Chicago Metal Mfg. Co., Chicago, Ill.
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Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
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Warm Air Furnace Fan Co., The Cleveland, Ohio
Williamson Heater Co., Cincinnati, Ohio
- Furnace Fuses.**
National Regulator Co., Chicago, Ill.
- Furnace Regulators.**
National Regulator Co., Chicago, Ill.
- Furnace Rings.**
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Milwaukee Corrugating Co., Milwaukee, Wis.
- Furnaces—Gas.**
Calkins & Pearce, Columbus, O.
Mueller Furnace Co., L. J., Milwaukee, Wis.
- Furnaces—Warm Air.**
Agricola Furnace Co., Gadsden, Ala.
American Furnace Co., St. Louis, Mo.
American Foundry & Furnace Co., Bloomington, Ill.
Brillion Furnace Co., Brillion, Wis.
Detroit-Michigan Stove Co., Detroit, Mich.
Floral City Heater Co., Monroe, Mich.
Forest City-Walworth Run Fdy. Co., Cleveland, Ohio
Fox Furnace Co., Elyria, Ohio
Henry Furnace & Fdy. Co., Cleveland, Ohio
Hess-Snyder Co., Massillon, Ohio
Homer Furnace Co., Coldwater, Mich.
Lamneck Co., W. E., Columbus, Ohio
Langenberg Mfg. Co., St. Louis, Mo.
Lennox Furnace Co., Marshalltown, Ia.; Syracuse, N. Y.
- May-Flebeiger Furnace Co., Newark, Ohio**
Meyer Furnace Co., The Peoria, Ill.
Moncrief Furnace Co., Atlanta, Ga.
Mt. Vernon Furnace & Mfg. Co., Mt. Vernon, Ill.
Mueller Furnace Co., L. J., Milwaukee, Wis.
Premier Warm Air Heater Co., Dowagiac, Mich.
Richardson & Boynton Co., New York, N. Y.
Robinson Co., A. H., Massillon, Ohio
Rybolt Heater Co., Ashland, Ohio
Standard Furnace & Supply Co., Omaha, Neb.
Success Heater Mfg. Co., Des Moines, Iowa
Thatcher Co., Chicago, Ill.
XXth Century Heating & Ventilating Co., Akron, Ohio
Waterman-Waterbury Co., Minneapolis, Minn.
Western Steel Products Co., Duluth, Minn.
Williamson Heater Co., Cincinnati, Ohio
Wise Furnace Co., Akron, Ohio
- Garages—Metal.**
Thomas & Armstrong Co., The London, Ohio
- Gas (Acetylene) Dissolved.**
Prest-O-Lite Co., Inc., New York, N. Y.
- Gas (Nitrogen).**
Linde Air Products Co., New York, N. Y.
- Gas (Oxygen).**
Linde Air Products Co., New York, N. Y.
- Glass—Wire.**
Lupton's Sons Co., David, Philadelphia, Pa.
- Grilles.**
Auer Register Co., Cleveland, Ohio
Harrington & King Perforating Co., Chicago, Ill.
Hart & Cooley Co., New Britain, Conn.
Independent Reg. Co., Cleveland, Ohio
Tuttle & Bailey Mfg. Co., Chicago, Ill.
- Grilles—Store Front.**
Tuttle & Bailey Mfg. Co., Chicago, Ill.
- Guards—Machine and Belt.**
Harrington & King Perforating Co., Chicago, Ill.
- Handles—Boiler.**
Berger Bros. Co., Philadelphia, Pa.
- Handles—Soldering Iron.**
Hyre Mfg. Co., New York, N. Y.
- Hangers—Eaves Trough.**
Berger Co., L. D., Philadelphia, Pa.
Horan Stay Hanger Co., Louisville, Ky.
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
- Heat Regulation Systems.**
National Regulator Co., Chicago, Ill.
- Heaters—Cabinet.**
Fox Furnace Co., Elyria, Ohio
Mueller Furnace Co., L. J., Milwaukee, Wis.
Waterman-Waterbury Co., Minneapolis, Minn.
- Heaters—Gas.**
Floral City Heater Co., Monroe, Mich.
Meyer Furnace Co., The Peoria, Ill.
- Heaters—School Room.**
L. J. Mueller Furnace Co., Milwaukee, Wis.
Standard Furnace & Supply Co., Omaha, Neb.
Waterman-Waterbury Co., Minneapolis, Minn.
- Hooks—Conductor.**
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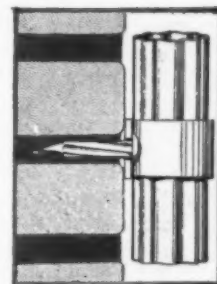
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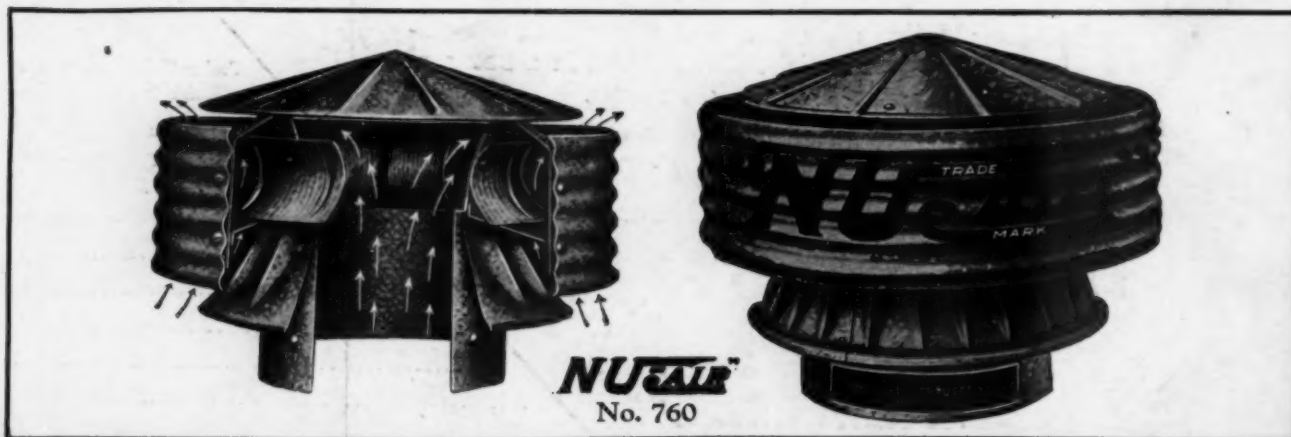
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